Overcoming the consequences of unemployment

Labor market success and well-being of the unemployed

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Content

Introduction

1. Motivation and thematic introduction

Sociological classics, like Marx, Durkheim and Weber, already put the role of work in the center of their research. They examined how work impacts society and how society influences work. Decades later, work is still at the center of our society. “What do you do for a living?” is one of the most-asked questions during the introduction at social gatherings; we are what we do. Consequently, the loss of employment is most often a detrimental and disruptive experience for the individual. Yet, increasing globalization and technological change have facilitated political reforms toward a stronger labor market flexibilization, resulting in a higher amount of non-standard forms of employment. Subsequently, this leads to more de-standardized employment histories, making unemployment an increasingly prominent part of the individual life course. As the process toward flexibilization is strongly intertwined with the occurrence of individual unemployment, understanding ways to alleviate the individual consequences of unemployment becomes a political and societal responsibility. Therefore, this dissertation asks: *What can the state do to alleviate the consequences of unemployment? What can the individual do to mitigate the consequences of unemployment?*

Since the mid-1970s, Germany faced high structural unemployment, particularly a growing number of long-term unemployed and strong barriers to re-entry into the labor market (Eichhorst, 2013). Germany was perceived as the “sick man of Europe (The Economist, 1999, June 3)”, overregulated with regard to employment protection, labor standards and with an expensive social security system (Rühmann, 2004). In the mid-2000s, Germany underwent a variety of different deregulatory reforms, typified by the Hartz reforms from 2003 to 2005, aiming at two goals: 1) restructuring the social security system and re-channeling expenditure

toward active labor market policies to shorten unemployment duration and the amount of benefits claimed, and 2) increasing labor market flexibility to enhance the capacity of the German labor market (Eichhorst, 2013; Leschke, 2014). To implement the second goal, the use of flexible working arrangements was facilitated. These so-called 'a-typical jobs' encompassed in particular start-ups, part-time and minor jobs as well as temporary agency work (Eichhorst, 2013; Eichhorst & Marx, 2011; Leschke, 2014). Today, Germany has the lowest unemployment rate since its reunification and remains stable even during economic shocks such as the financial crisis in 2008 (Eichhorst, 2013). Yet, the shift toward the stronger utilization of non-standard employment relations fostered the so-called de-standardization process: Typically, an individual went through three phases in life; education to employment to retirement. Today, these phases are less fixed and more flexible, with various transitions, where an individual might go from education to employment and back to education, change occupations or undergo phases of unemployment in between employment phases (Simonson, Gordo, & Kelle, 2015).

Furthermore, the German labor market is currently undergoing a transition toward greater automatization of many routine jobs, in manufacturing, clerical and retail work but also in typical white-collar occupations such as finance, education and medicine (Brynjolfsson & McAfee, 2014; Kaplan, 2015). Increasing the need for workers proficient in creativity and problem-solving skills, a decrease in the need for any routine, unskilled jobs such as service work is to be expected. A recent study for Germany (Windhagen et al., 2017) assesses that about 48% of all jobs in Germany are at least to some extent automatable. This change in skill-demands and the large amount of jobs that could potentially be automated, is predicted to speed up the trend toward greater labor market flexibilization through the use of non-standard types of employment, such as temporary contracts and self-employment, in order to meet quickly changing labor-demand (Walwei, 2016). Overall, through political reforms, Germany has strongly facilitated a trend toward the deregulation of the traditional permanent full-

employment toward more flexible, temporary working arrangements. This trend will ultimately also impact the occurrence of unemployment, making it a more prominent and likely part of individual employment patterns.

The loss of employment leads to detrimental consequences on both the individual and the macro level. On the individual level, unemployment leads to financial losses (Couch & Placzek, 2010), decreased psychological well-being (Lucas, Clark, Georgellis, & Diener, 2004), sometimes even resulting in depression (Jefferis et al., 2011), and to lower levels of social and political participation (Giugni & Lorenzini, 2013; Kunze & Suppa, 2017). Moreover, the axiom that the problem of unemployment can be solved by employment, often dominating scholarly and public thinking, is repeatedly found to be untrue. Instead, unemployment leaves a 'scar', i.e. the detrimental consequences of unemployment are manifesting themselves even after re-entry into the labor market, resulting in a higher probability of decreased well-being, lower employment stability, higher income volatility, lower (expected) wages as well as worse working conditions (Arulampalam, 2001; Arulampalam, Gregg, & Gregory, 2001; Brand, 2006; Dieckhoff, 2011; Lucas et al., 2004). On the macro level, the consequences of unemployment are a concern both for the economy and the society. Economically, a high number of unemployed, facing the deterioration of human capital and feelings of discouragement, will eventually be unable to compete on the labor market, leading to a decrease in effective labor market supply and subsequently higher wage levels. Ultimately, this would again result in higher unemployment rates (Layard, Layard, Nickell, & Jackman, 2005). Regarding the impact on the society, unemployed individuals shape the political culture and discourse. City districts with higher unemployment rates tend to have lower voter turnouts (Schäfer, 2012). Unemployed citizens are in general less politically active than employed citizens (Giugni & Lorenzini, 2013), show a higher level of distrust in governments (Van Erkel & Van Der Meer, 2016) and the efficiency of democracy (Altindag & Mocan, 2010). High

levels of voter turnout and satisfaction with democracy are regarded as important determinants for the stability and performance of democratic systems (Dalton, 2007, p. 157; Franklin, 2004; Powell, 1986). Moreover, some research suggests that unemployment can be a culprit for right-wing attitudes and voting (Falk, Kuhn, & Zweimüller, 2011; Siedler, 2011). But again, the political behavior of the unemployed is most likely not simply linked to only unemployment per se. Instead, it can be argued that the relationship between unemployment and political attitudes and behaviors is strongly shaped by the consequent feelings of social isolation, lower political efficacy, lower life satisfaction as well as increased anxiety about the future that are linked to the experience of unemployment (Dieckhoff & Gash, 2015; Emmenegger, Marx, & Schraff, 2015; Lange, 2013; Lucas et al., 2004). The consequences of unemployment are found both on the individual as well as on the macro level and examining ways to overcome the consequences of unemployment will subsequently have to take both levels into account.

Unemployment is a critical component of the ongoing change toward greater labor market flexibilization and automatization. This makes it even more relevant to understand the consequences of unemployment and ways to overcome or at least alleviate them. Germany is an interesting case to examine, because through a variety of political reforms, it seemingly found a way to successfully implement flexible working arrangements and combat high levels of unemployment yet did so by fostering employment patterns that ultimately give higher prominence to the occurrence of spells of unemployment in the life of its citizens. Unemployment is of strong importance to well-being, social inclusion and political participation of the individual and examining ways to overcome its consequences in light of the labor market changes is and will be of high societal and political importance. This dissertation examines how the state can foster self-help among the unemployed and how the individual can take on responsibility to overcome the consequences of unemployment by asking: Can government interventions increase the life satisfaction of the unemployed? Can life satisfaction

increase the likelihood of reemployment? Does education matter for post-unemployment job quality? Examining these three questions, the dissertation aims to provide a comprehensive understanding of different ways to overcome the consequences of unemployment. This is done by focusing in its predictors on both the individual (life satisfaction, education) and macro (government interventions) level and in its outcomes on tangible (reemployment) and non-tangible (life satisfaction, reemployment job quality) aspects.

Henceforth, the three parts of this dissertation are the following:

- *Study 1:* "The impact of active labor market policies on the well-being of the unemployed"
- *Study 2:* "Can life satisfaction predict reemployment? Evidence from German panel data"
- *Study 3:* "The skill-divide in post-unemployment job quality"

The introduction is structured as follows. Chapter 2 gives an overview over the studies, introducing their motivation and main research questions. Chapter 3 presents an overview over the outcomes in all studies as well as the underlying theoretical framework and hypotheses. Chapter 4 integrates the whole project into the overall academic discourses. Results, limitations and directions for future research will be discussed in the concluding chapters, at the very end of this dissertation.

2. Extensive summaries

This section gives an overview and extensive summaries for all three parts of this cumulative dissertation. Table 1 presents an overview over the key features in each study.

Table 1

Dissertation overview

	Study 1	**Study 2**	**Study 3**
Title	The impact of active labor market policies on the well-being of the unemployed	Can life satisfaction predict reemployment? Evidence from German panel data	The skill-divide in post-unemployment job quality
Research question(s)	Does the participation in active labor market policy programs increase the life satisfaction of the unemployed?	Does life satisfaction predict reemployment?	Are the low-skilled more likely to experience decreased post-unemployment job quality? Is the impact of skills stronger in blue- than in white-collar occupations?
Dependent variable(s)	Life satisfaction	Reemployment	Decrease in quality of employment (several indicators)
Core independent variable	Participation in ALMP scheme	Life satisfaction	Education
Data	First two waves of the IZA Evaluation dataset	Ten waves of the GSOEP	23 waves of the GSOEP
Country	Germany	Germany	Germany
Observation period	2007 – 2009	2005 - 2014	1985 - 2007
Method of analysis	Difference-in-difference propensity score matching	Multi-level discrete event history model	Multi-level linear probability model

2.1 The impact of active labor market policies on the well-being of the unemployed

The first of the overall three papers examines the impact of the participation in active labor market policy (ALMP) programs on the well-being of the unemployed. A vast amount of research has pointed toward the detrimental impact of job loss on well-being, continuing as a 'scarring effect' even beyond reemployment (Lucas et al., 2004; McKee-Ryan, Song, Wanberg, & Kinicki, 2005; Winkelmann & Winkelmann, 1998). Academic interest has been concerned with aspects that mitigate the negative consequences of unemployment, but little focus has been given toward the role of government interventions moderating the impact of unemployment on well-being (Andersen, 2008; Strandh, 2001; Wulfgramm, 2011). Public policies shape the lives of citizens (Breidahl & Clement, 2010; Gundert & Hohendanner, 2015), especially of those who are dependent on them, as it is the case for the unemployed receiving unemployment benefits. It is argued that ALMP schemes, providing e.g. training or work schemes, have the potential to alleviate the negative impact of unemployment, because they constitute a form of intermediate labor market status, where participants are neither employed nor unemployed in the usual way, thereby offering organized activities and a daily routine for the unemployed (Coutts, 2010). With the Hartz reforms in 2003-2005, Germany allocated a lot of funding and resources into these programs (Jacobi & Kluve, 2007), making German ALMP programs an interesting case to examine the impact of government interventions on the life satisfaction of the unemployed.

I utilize the Social Production Function (SPF) theory, which builds on the premise that humans actively seek subjective well-being by choosing cost-effective ways to produce it, in spite of limited information and within the set of resources and constraints they face (Ormel, Lindenberg, Steverink, & Verbrugge, 1999). Subjective well-being is considered as a function of physical and social well-being, which can only be produced through five instrumental goals: Physical well-being is captured by a function of *stimulation* (i.e., mentally and sensory

stimulating activities, physical effort, etc.), and *comfort* (the absence of harmful stimuli like thirst, hunger, pain, etc.). Social well-being is mainly achieved by *status* (a relative ranking, based on the control over rare resources), *behavioral confirmation* (the feeling of 'doing the right thing') and *affection* (i.e., emotional support through relationships). Work enables individuals to produce life satisfaction through all five instrumental goals. The production of multiple instrumental goals is referred to as 'multifunctionality'. To substitute the contribution of work to the production of life satisfaction through the participation in ALMP schemes, the schemes must produce life satisfaction at least to a similar extent. Consequently, I hypothesize:

> *H*: The higher the multifunctionality of the ALMP scheme, the stronger is their impact on life satisfaction.

Using the Evaluation dataset from the German Institute of Labor Economics (IZA), the results were in line with my theoretical expectations. ALMP schemes which were expected to be most similar to employment in their capacity to produce life satisfaction, namely wage and start-up subsidies, show a strong positive impact on the life satisfaction of the unemployed. Short- and long-term training show only a marginal positive effects on life satisfaction, which is surprising given the importance of educational programs for the combat of unemployment in the corresponding ALMP literature (Morel, Palier, & Palme, 2012). Looking at regional and gender differences, however, indicates effect heterogeneity. Receiving a wage subsidy leads to a positive impact on the life satisfaction for both East and West German respondents, yet only for men. The impact of start-up subsidies, short-term training and sanctions were driven by their impact on West German (rather than East German) and male (rather than female) respondents, while the impact of long-term training was driven by East German (rather than West German) and male (rather than female) respondents. The results on East German respondents appears to be representing the worse labor market situation, which leads to a higher level of overall insecurity and therefore less of an effect in life satisfaction among the respondents. Most

surprisingly, none of the examined ALMP schemes shows an effect on the female respondents, possibly because the negative impact of unemployment on life satisfaction tends to be stronger for men than for women (Clark, Georgellis, & Sanfey, 2001) as well as the difficulty among female unemployed to balance family and work obligations, resulting in a negligent impact of participation on their life satisfaction.

The study contributes to the literature in a variety of respects: 1) it uses a novel data set, 2) a new theoretical framework is applied, and 3) it is the first study which distinguishes among different ALMP programs. Most importantly, it shows that the consequences of unemployment regarding well-being can indeed be overcome by participation in government schemes and that, consequently, the state can facilitate the detrimental experience of unemployment to some extent.

2.2 Can life satisfaction predict reemployment? Evidence from German panel data

Most research on ALMP schemes focuses on their impact on tangible economic outcomes (cf. Card, Kluve, & Weber, 2010; Kluve, 2010). While there certainly is a means to an end in increasing the life satisfaction of the unemployed, study 2 takes up the question of the economic relevance of life satisfaction and tests whether life satisfaction contributes to the reemployment success of the unemployed.

Transitioning into a new job is ultimately a lot more difficult for the unemployed than the employed, particularly because spells of unemployment are interpreted as a signal of lower productivity by the employers (Eckstein & Van den Berg, 2007; Eriksson & Gottfries, 2005; Rogerson, Shimer, & Wright, 2005). Although a vast amount of studies found positive effects of life satisfaction on occupational success (for an overview see Lyubomirsky, King, & Diener, 2005), the question on the role of life satisfaction for reemployment remains comparatively understudied. The few conducted studies on this question have provided mixed results (Gielen

& van Ours, 2014; Krause, 2013). We contrast three theoretical perspectives: *Positive psychology* (Lyubomirsky et al., 2005) postulates a positive effect, because more satisfied unemployed will have better social networks that they can utilize for job search (Barbulescu, 2015; Diener & Seligman, 2002; Fowler & Kam, 2007), greater self-efficacy and personal control (Creed & Bartrum, 2008; Eden & Aviram, 1993) and have higher levels of openness, resulting in more proactive job search behavior (Elliot & Thrash, 2002; Watson, Wiese, Vaidya, & Tellegen, 1999). *Motivation theories* make the opposite prediction and suggests that the discrepancy between the current and the desired state will result in a low level of life satisfaction (Michalos, 1985), and thus motivate the unemployed to quickly find reemployment (Carver, 2003). Finally, the *optimum level of well-being theory* (Grant & Schwartz, 2011; Gruber, Mauss, & Tamir, 2011; Oishi, Diener, & Lucas, 2007) advocates for a non-linear relationship, i.e. moderate rather than low or high levels of life satisfaction will result in the highest probability of reemployment. High levels of life satisfaction are expected to increase unrealistically high expectations and risky behavior as well as overconfidence (Dunning, Heath, & Suls, 2004; Milam, Richardson, Marks, Kemper, & McCutchan, 2004; Vancouver & Kendall, 2006), possibly leading to e.g. insufficient job search effort and applications for jobs the unemployed is underqualified for. In summary, we tested three competing hypotheses:

H1: Higher levels of life satisfaction in unemployed individuals results in a higher likelihood of reemployment.

H2: Higher levels of life satisfaction in unemployed individuals results in a lower likelihood of reemployment.

H3: Moderate rather than high or low levels of life satisfaction in unemployed individuals results in a higher likelihood of reemployment.

Using the German socio-economic panel (GSOEP), we explored all three perspectives and found support for the optimum level of well-being hypothesis, i.e. moderate rather than low or high levels of life satisfaction were associated with the highest probability of reemployment success. Consequently, our findings provide support for our third hypothesis. Our results were found for both men and women, yet the effect was slightly stronger for male respondents.

The study 1) contributes to a small but growing literature on the beneficial effects of a moderate, rather than too high or too low level of life satisfaction. We 2) challenge two of the most common strands of theory in well-being research, namely positive psychology and motivation theories, and 3) contributed to the literature by showing the economic impact of well-being, making the literature even more relevant especially to economists, who traditionally have not shown as much interest in psychological constructs that do not yield a clear economic impact. Overall, the study shows that the individual outlook on life can contribute to labor market success and increases the likelihood to overcome the consequences of unemployment.

2.3 The skill-divide in post-unemployment job quality

The third study examines the impact of education on post-unemployment job quality. With the ongoing technological change and the educational expansion, low-skilled workers are increasingly forced into low-paid, insecure jobs. Research has pointed toward a strong skill-divide in job quality (Gesthuizen, Solga, & Künster, 2010; Solga, 2002; Stier, 2015). Because it is known that unemployment leads to a decrease in post-unemployment job quality (Brand, 2006; Dieckhoff, 2011), we examined whether unemployment enhances the skill-divide in job quality.

To explain the link between education and post-unemployment job quality, we utilize three different strands of research that have been prominent in economics and sociology. The first hypothesis relates to the *transferability of skills* (Becker, 1964); higher education provides

mostly general skills, such as analytical thinking and problem-solving. Lower education, in contrast, provides specific vocational skills. We argue that the specific skills of the lower educated unemployed will restrict their occupational choices in their job search, making it more likely that low-skilled unemployed will have to accept employment of lower job quality. Further, potential employers will use the lower education as a signal of higher additional training cost and provide lower-skilled unemployment with worse job offers. Second, the so-called *displacement argument* refers to the occurrence in times of high job competition, in which high-skilled workers out-qualify low-skilled workers (cf. Blossfeld, 1985; Boudon, 1974). With the increasing oversupply of high-skilled workers due to the educational expansion, and consistent job shortage in many countries, scholars isolate an out-crowding effect with the highly skilled displacing the low skilled, ultimately forcing low-skilled workers into jobs of poorer quality (Heijke et al., 2003; Solga, 2008). Third, also due to the educational expansion, the number of less educated people has changed, resulting thus also in a change of their group composition and what Solga (2002) calls *'stigmatization by negative selection'*. This relates to the impact of the educational expansion, which has decreased the number of lower educated workers, thus making them the minority and '"deviating" from *the* educational norm' (Solga, 2002, emphasis in original). Further, those who remain low-educated are often a 'negative selection' in their social background, their abilities, and career aspirations. Overall, employers take lower education as a signal of low productivity and capacity and offer jobs of worse job quality to the low-skilled applicants (Solga, 2002). All three perspectives lead us to the same hypothesis:

> *H*: Lower education in unemployed individuals will result in a higher likelihood of decreased post-unemployment job quality.

We used the GSOEP survey that includes a variety of job quality indicators, covering both the financial and non-financial aspects of job quality. Looking at each job quality indicator

individually, we found just the opposite to what we expected: High-skilled unemployed people who re-enter the labor market have a higher likelihood of finding jobs of decreased post-unemployment job quality compared to low-skilled unemployed who find reemployment. Our results are particularly driven by high-skilled respondents who experience downward mobility, that is, do not find reemployment that matches their own educational level. Our results are found to be robust with respect to the duration of job search and the participation in further education. We find an exception regarding skill-use, namely high skilled respondents appear to have a higher likelihood of finding post-unemployment jobs in which they can utilize their skills and abilities. We conclude that the high-skilled incline to decreased working conditions post-unemployment but are still more likely to find jobs with good skill-matches. But given the results, we argue that there appears to be a floor-effect; low-skilled unemployed might already be subject to low pre-unemployment job quality and there simply is no 'way down' in terms of job quality. At the same time, for the high-skilled unemployed, who are typically found in jobs of higher quality, unemployment is a disruptive event which leaves them with a higher probability of downward mobility. Regarding our initial question, whether unemployment fosters the skill divide in job quality, our results lead to the conclusion that it indeed does not. Although it would be preferable to find jobs with equal or improved quality after unemployment for all respondents, in particular given its importance for employment stability and health (Allen & van der Velden, 2001; Henseke, 2017), unemployment appears to be most disruptive for those who are on the up-side of job quality. This is especially the case if the unemployed person accepts a job for which he or she is overqualified.

The paper contributes by 1) examining a research question that has been given little to no attention so far, combining research on the skill-divide in job quality as well as the scarring-effect of unemployment job quality. We 2) extent the economic and sociological understanding of job quality by examining a variety of pecuniary and non-pecuniary indicators of job quality.

Overall, the third part of this dissertation shows that higher education is indeed no ‘safety net’ to overcome the consequences of unemployment.

3. Concepts and theoretical framework

This dissertation focuses on three ways to overcome the consequences of unemployment; increasing life satisfaction, finding reemployment and good quality of reemployment. The following section includes a closer look at each of the three outcomes and the underlying theoretical frameworks.

3.1 Research objects

Part 1 of this dissertation focuses on the *life satisfaction* of the unemployed. The so-called ‘quality of life’ or well-being research came to importance for sociological theory in the 1960s and 70s (Noll, 2004) and centered around questions like: What is a good life? How does one achieve such a good life (Veenhoven, 1996)? Well-Being, “an individual’s appraisal of his or her life situation overall (Ormel et al., 1999)”, has in the meanwhile become a research field of its own. Subjective well-being can be conceptually divided into the “affective feelings and cognitive judgment people have about the quality of their life (Cheung & Lucas, 2014)”. The first part is commonly called ‘happiness’ and the second one is commonly called ‘life satisfaction’ (Diener, Suh, Lucas, & Smith, 1999). Consequently, life satisfaction is the “cognitive evaluation of whether one is [satisfied] with one’s life (Cheung & Lucas, 2014)” and closely related to several domain outcomes such as finances, health and employment (Diener et al., 1999).

In the second part of this dissertation I examine *reemployment*, referring to individuals who have (in)voluntarily left the labor market with the motivation to find new employment and then re-entered the labor force by finding a new full- or part-time job.

Part 3 focuses on *quality of employment*. In labor economics, job quality is traditionally associated with the wage level (Card, 1999; Kalleberg, Reskin, & Hudson, 2000), but financial aspects do not provide a comprehensive understanding of the overall quality of that job (Dieckhoff, 2011; McGovern, 2007). In sociology, job quality is often measured by ranking occupational groups due to social status or prestige (Mayer & Carroll, 1987). But people value their jobs not only due to the wages and the prestige, but for their working hours, safe working environments, holidays, a good relationship with their colleagues and superiors etc. Individuals might thus, ceteris paribus, still prefer jobs with higher wages and more prestige, but only examining those aspects appears to not capture the whole aspect that makes up job quality (McGovern, 2007). More and more, scholars point toward the necessity of defining job quality in relation to the overall working conditions of the job. While there is no agreed-on definition or comprehensive measurement of job quality in the social sciences, the OECD defines job quality as "those aspects of a job that contribute to people's well-being, by impacting on material living standard or their quality of life at work" (OECD), which is still a highly vague definition. But they provide an overview over the three main aspects they see to be distinguished and those provide a better understanding of what is actually meant by "aspects of a job that contribute to people's well-being"; First, the terms and conditions of the work contract (earnings, working hours, contract duration etc.); second, the work environment (work autonomy, safety at work, work content etc.), and third, the institutional and policy framework (in-work benefits for low-income families, unemployment insurance, pension rights etc.). In general, job quality can be defined using objective criteria (such as wage, prestige, contract type etc.) or subjective criteria (job satisfaction, subjective evaluations of working conditions). Using subjective criteria thereby provides the advantage that people's heterogeneous preferences are taken into account (Green, 2013), which can differentiate from what might be 'objectively' considered a good job. For example, part-time work might be just the perfect amount of working time for many new parents, but a job of low quality for those who would

prefer to work in a full-time position. Similarly, a temporary working contract might constitute a job of low security for some and just the flexibility they are looking for, for others.

3.2 Theoretical framework

The three parts of this dissertation incorporate different theoretical frameworks, combining theories from the disciplines of sociology, economics and psychology. The following section aims to show how all theories tie in with each other and how they shape the discussion on the consequences of unemployment and the ways to overcome them.

Reading about the theoretical links explaining the individual-specific impact of unemployment, two types of narratives become apparent. On the one side of the spectrum is the narrative that the unemployed are passive actors who are out of work due to circumstances they cannot control. Among the most established theory relying on this type of narrative is the theory of deprivation that, based on their famous Marienthal study, Jahoda and colleagues came to develop (Jahoda, 1982; Jahoda, Lazarsfeld, & Zeisel, 1971). According to the theory, the loss of work leads to a state of deprivation for the individual and consequently a decrease in well-being. Well-being can only be resumed by reemployment. On the other side of the spectrum is the narrative that the unemployed is not a passive victim to his or her situation and environment. Instead the individual can actively influence their labor market outcomes (Kalleberg, 2009). For example, Fryer (1986) describes in his theoretical approach the unemployed as "social actors (…) [who] exercise agency (…) to reach the goals and rewards deemed desirable (Nordenmark & Strandh, 1999)". This narrative is closely related to the concept of 'agency', i.e. the notion that an individual "influence intentionally one's functioning and the course of environmental events. (…) People are contributors to their life circumstances not just products of them (Bandura, 2008)". Both narratives have their advantages and drawbacks. The first narrative takes the environment and in particular the constraints the unemployed faces into

account. On the other side, it ignores that individuals can indeed actively shape their circumstances to a certain extent. The second narrative, to the contrary, acknowledges that individual can utilize resources, decide how to respond to challenges and changing circumstances, but widely ignore the aspect that the loss of work and the consequences are often not in the choice of the individual. In the end, both narratives are important parts of the bigger picture and both need to be considered when explaining how individuals overcome the consequences of unemployed.

The theoretical frameworks underlying these studies cover a combination of both narratives. The first part of this dissertation examines the impact of participation in ALMP programs on the life satisfaction of the unemployed, utilizing *SPF theory* (Esser, 1999; Ormel et al., 1999). SPF theory starts on the premise that humans actively seek and produce their own life satisfaction, despite limited information and within the set of resources and constraints they face. The second part of this dissertation examines whether life satisfaction has an impact on reemployment success by contrasting three theoretical frameworks – positive psychology, motivation theories and the optimum level of well-being theory. While all three theories make different predictions with regard to the relationship between life satisfaction and reemployment, they all look at the way the individual reacts to unemployment. For example, *positive psychology* (Lyubomirsky et al., 2005) assumes that people who are highly satisfied with their life will also attract better and bigger social networks and ultimately use those for more effective job search. *Motivation theory* (Carver, 2003; Michalos, 1985) assumes that in a state where the unemployed feels a discrepancy between what is present and what is desired gives them the right motivation to want to change their circumstances. And *optimum level of well-being theory* (Oishi et al., 2007) assumes that if the individual is in a middle ground, neither too satisfied and thereby overconfident, nor too unsatisfied and on the verge of depression, individuals are making reasonable decisions with regard to their abilities and job search, leading to highest

reemployment success. All theoretical frameworks in the corresponding studies assume that the unemployed actively shape their circumstances and attempt to influence their life course, ultimately enhancing their chances of labor market success and well-being. Consequently, on the spectrum that is described above, the theoretical frameworks of study 1 and 2 would be found rather on the spectrum toward 'agency'.

The third part of this dissertation tests whether education has an effect on post-unemployment job quality and bases the main assumptions on three theoretical frameworks - *transferability of skills* (Becker, 1964), *displacement theory* (Blossfeld, 1985; Boudon, 1974) and *selection by negative stigmatization* (Solga, 2002). Contrary to the theoretical frameworks of the first two studies, the theoretical frameworks of the third study build on the premise that resources, such as human capital, matter and some individuals might be better equipped to face the consequences of unemployment than others. It is assumed that a trajectory of lower education constraints an individual by limiting the amount of occupational choices. Individuals are therefore not assumed to shape their circumstances but to be rather passive, dependent on their environment (the labor market) and their already acquired resources (education). Consequently, the theoretical framework of study 3 would be situated rather on the opposite of the spectrum of narratives in comparison to study 1 and 2, towards the notion of 'dependency'.

Overall, both narratives are important to understand the consequences of unemployment, as individuals are both active actors as well as dependent on their environment, and not one aspect can go without the other. This combination of views is expressed in the different theoretical frameworks in this dissertation.

4. Integration into the scholarly discourse

Public discourse is strongly shaped by the media and scholarly discourse, by economics, psychology, political science and sociology. These discourses shape how society sees and

ultimately treats unemployment (Boland & Griffin, 2015). Therefore, in the following, the studies in this dissertation will be integrated into a variety of scholarly discourses on unemployment.

All three parts of this dissertation aim to challenge the existing literature and contribute to it by examining ways to overcome the consequences of unemployment that have not been given much attention in the corresponding literature. Study 1 and 3 address a common notion, namely the "axiology, that unemployment is a problem to be solved by employment, [which] dominates social, economic and political thinking (Boland & Griffin, 2015)". Instead, unemployment is more than "simply the absence of work (…), it is an experience of being defined by the state as a certain type of individual, with a certain relationship to the labor market and then being subject to a host of governmental interventions (Boland & Griffin, 2015)". Study 1 shows that the unemployed can indeed become more satisfied with their life through more than just reemployment. Government schemes, introducing a daily routine, a new social environment, often an income and possibly even meaningful daily activity, can help to overcome the consequences of unemployment on well-being. Study 3, in turn, shows that becoming reemployed is indeed not the simple solution to the problem of unemployment that it is often thought to be and that the formerly unemployed are still subject to a vast amount of consequences regarding their post-unemployment job quality. Consequently, both studies show that in the short run, it is possible to alleviate the consequences of unemployment without regaining employment, as well as that it is not enough to regain employment in order to overcome the consequences of unemployment.

Study 1 and 3 are furthermore situated in the overall discourse on the importance of education. Education is arguable of importance for labor market success (Card, 1999; Fasih, 2008; Gangl, 2000). Yet with the rise of the 'social investment welfare state', human capital investment has become a new kind of 'panacea' to combat unemployment (cf. Morel et al., 2012). Study 1

shows that ALMP schemes most oriented toward human capital investment, i.e. long-term and short-term training, show a significant but weak impact on the well-being of the unemployed, much in contrast to schemes such as wage and start-up subsidies which do not incorporate a vast amount, if any, of educational training. Study 3 shows that higher education does not protect against diminished job quality post-unemployment. Both studies contribute to the debate on the relevance of education for desirable labor market outcomes by showing that education can be promising in many contexts, but certainly is no silver bullet that sparks labor market miracles (Arias, 2014).

Study 2 captures the debate on the importance of the non-pecuniary consequences of unemployment in the labor market research discourse. Much of the research conducted in labor market studies focuses on tangible outcomes such as the financial consequences and reemployment (cf. Card, 1999; Kluve, 2010). While the economic consequences are clearly of importance, it is also necessary to evaluate and understand "the wider social and psychological consequences (Furåker, 2009)" of job loss. Study 2 picks up on this discussion and shows that the question of tangible and non-tangible outcomes of unemployment is no either-or-question. Instead, by showing the positive impact of life satisfaction on reemployment, the study indicates that concepts such as well-being are ultimately of economic importance. Thus, while the psychological and social consequences are typically researched in sociology and even more so in psychology, a stronger collaboration among economists and social psychologists would be beneficial for a comprehensive understanding of unemployment.

5. Status of studies and contribution of co-authors

Study 1, *The impact of active labor market policies on the well-being of the unemployed*, is single-authored and accepted for publication at the Journal of European Social Policy.

Study 2, *Can life satisfaction predict reemployment? Evidence from German panel data*, has been co-authored by Dr. Olga Stavrova, University of Tilburg, Netherlands. I am lead author of this study, which is currently under review at the Journal of Economic Psychology. The contributions to this study can be differentiated as follows:

Damaris Rose: Development of the research question; review of research literature; data preparation and empirical analysis; discussion of the results.

Dr. Olga Stavrova: Development of theoretical frameworks; feedback on empirical strategy; revisions of all parts of the study.

Study 3, *The skill-divide in post-unemployment job quality*, has been co-authored by Prof. Haya Stier, University of Tel-Aviv, Israel. I am lead author of this study, which is currently under review at Work and Occupations. The contributions to this study can be differentiated as follows:

Damaris Rose: Development of research question and theoretical framework; review of research literature; data preparation and empirical analysis; discussion of the results.

Prof. Dr. Haya Stier: Feedback on the theoretical and empirical strategy; revisions of all parts of the study.

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Study 1

The impact of active labor market policies on the well-being of the unemployed

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Abstract

Asking whether social policies can alter the experience of unemployment, this paper systematically evaluates whether participation in active labor market policies (ALMP) influences the well-being of the unemployed. With consistently high unemployment rates in OECD countries, scholars have started to examine the impact of ALMP schemes on a variety of tangible economic outcomes but put little focus on their sociological and psychological impact. Using a novel panel survey, the IZA Evaluation Dataset, I employ a propensity score matching approach combined with difference-in-differences to address selection on both observables and unobservables. Consistent with my theoretical predictions, I find evidence that ALMP programs most like regular employment, namely wage subsidies and subsidized self-employment, have the strongest impact on the well-being of the unemployed. Looking at regional and gender differences indicates interesting effect heterogeneity.

1. Introduction

Examining the impact of the participation in active labor market policy (ALMP) schemes on the well-being of the unemployed, this paper analyzes the question whether social policies can alter the experience of unemployment. A vast amount of research has pointed toward to detrimental impact of job loss on well-being (Lucas, Clark, Georgellis, & Diener, 2004; McKee-Ryan, Song, Wanberg, & Kinicki, 2005; Winkelmann & Winkelmann, 1998), continuing as a 'scarring effect' even beyond reemployment (Lucas et al., 2004). In light of these findings and the ongoing problem of joblessness in many OECD countries, academic interest has been concerned with aspects that can alleviate the negative consequences of unemployment. But only recently, research has started to focus on the role of government interventions moderating the impact of unemployment on well-being (e.g. Andersen, 2008; Strandh, 2001; Wulfgramm, 2011). Public policies shape the lives of citizens (cf. Breidahl & Clement, 2010; Gundert & Hohendanner, 2015), especially of those who are dependent on it, such as the unemployed receiving unemployment benefits. ALMP schemes, providing e.g., training or work schemes, are playing an increasingly important role in many European countries. It is argued that they have the potential to alleviate the detrimental impact of unemployment, because they constitute a form of intermediate labor market status, where participants are neither employed nor unemployed in the usual way, thereby offering organized activities and a daily routine for the unemployed (Coutts, 2009).

Research on the impact of ALMP schemes has mostly focused on tangible economic outcomes such as re-employment rates and wage levels (see e.g., Card, Kluve, & Weber, 2010; Kluve, 2010 for an overview). The impact of ALMP schemes, however, is not restricted to economic outcomes and it is of importance to examine "the wider social and psychological consequences (Furaker, 2009)"; in the following the well-being of the unemployed. Subjective well-being can capture the subjective perception of the impact of public policies (Stiglitz, Sen, & Fitoussi,

2009) and has become of strong importance in public policy discussions (cf. Helliwell, Layard, & Sachs, 2016). More so, well-being can be seen as a relevant predictor of the objective success of ALMPs. A variety of studies have found a positive correlation between well-being and reemployment (cf. Krause, 2013). Unemployed who show low well-being may be less motivated to search for a job and in addition, less attractive as future employees (Korpi, 1997). A high number of unemployed who are unable to compete on the labor market will eventually lead to a decrease in effective labor market supply and subsequently higher wage levels, resulting in a higher unemployment rate. ALMPs therefore constitute a possibility to increase the competitiveness of the unemployed on the labor market (Layard, Nickell, & Jackman, 1991).

I aim to add another perspective to the research field by examining the impact of the participation in ALMP schemes on the well-being of the unemployed. This paper contributes to the current strand of research in four ways. First, utilizing a new data set, the IZA Evaluation Data Set, I can make use of rich information on a large sample size of newly-unemployed respondents, including a large variety of non-standard questions (such as personality traits, assessments on future outcomes etc.), which helps to reduce a possible endogeneity bias due to omitted variable bias or reverse causality. Second, while all research points toward a positive impact of ALMP participation on well-being, research so far is either not distinguishing among different programs (Korpi, 1997; Sage, 2015) or only looking at exclusive evidence of one specific program (Andersen, 2008; Wulfgramm, 2011). The categorization by Bonoli (2010) enables me to systematically examine a broad set of different German ALMP schemes, and further relate my results to the debate on the importance of human capital investment. Third, prior research has been either lacking to form theoretical expectations (Korpi, 1997) or used i.a., Jahoda's (1971; 1982) theory of deprivation (Andersen, 2008; Sage, 2015; Wulfgramm, 2011) that is well established in this field of research, yet lacking to fully explain the impact of

ALMP participation on well-being. This paper instead introduces the Social Production Function (SPF) theory (Ormel, Lindenberg, Steverink, & Verbrugge, 1999) to explain the impact of participation on well-being. Lastly, because prior research lacked to fully account for the problem of selectivity (e.g., Sage, 2015; Strandh, 2001; Wulfgramm, 2011) and assignment into treatment is not at random, the paper incorporates both difference-in-differences (DID) as well as propensity score matching (PSM).

My results show that the participation in ALMP programs indeed positively influences individual well-being. Recipients of wage subsidies and respondents in subsidized self-employment show an increase in well-being. Training programs are found to have a small impact on the well-being of the unemployed. Looking at regional and gender differences, however, indicates interesting differences. Wage subsidies lead to a positive impact on well-being for both East and West German respondents, yet only for men. The impact of self-employment, short-term training and sanctions are driven by their impact on West German and male respondents, while the impact of long-term training is driven by East German and male respondents. Overall, the results show that no ALMP scheme leads to a significant change in well-being among female respondents.

2. Active labor market policy programs in Germany

The growing importance of ALMPs in the strategy of many OECD countries to combat unemployment has been commonly described as an 'activation turn' (Bonoli, 2010). There is no agreed-on definition of ALMP schemes, which is mainly due to their different shapes across different countries. Bonoli (2010) presented a typology according to which ALMP programs have two different objectives; first, to put people back into employment ("promarket employment orientation") and second, to invest into their human capital. Along these two dimensions, ALMP programs can be distinguished. I will make use of this typology in the

description of the examined programs to show their diversity as well as put the results of this paper into perspective with the different aims of the programs (see Figure 1)[1].

After the so-called Hartz reforms between 2003 and 2005, the German case represents the tension between the economic aim of ALMP schemes to reintegrate the unemployed into the labor market and the social aim to secure the individual in case of unemployment. The German government cut back unemployment benefits and re-channeled social expenditures toward welfare programs, adding a stronger focus on investing into people, i.e. human capital investment (Brettschneider, 2008; Morel, Palier, & Palme, 2012). Further, implementing elements of workfare, the entitlement to unemployment benefit became tied to the fulfillment of obligations (Jacobi & Kluve, 2007), among them the participation in ALMP schemes.

	Investment in human capital		
Pro-market employment orientation	None	Weak	Strong
Weak		Short-term training	
Strong	Sanctions	Wage subsidies Subsidized self-employment	Long-term training

Figure 1

Type of active labor market policy

Wage subsidies (WS) aim to support the reintegration of the hard-to-place into the labor market, paying a subsidy to employers who are willing to hire unemployed, compensating them for the

[1] While public employment schemes are an important part of the German activation strategy to combat unemployment, they are not part of the analysis in this paper. The sample underlying the analyses consists of individuals who are subject to the German social code book (SGB) III as they enter unemployment and are therefore not eligible to participate in public employment schemes, such as e.g. one-euro-jobs.

low productivity of these workers (Wolff & Stephan, 2013). Subsidized self-employment (SSE) is available through a start-up grant if unemployed submit a business idea, a business plan and prove that the start-up will result in full employment (Caliendo & Kritikos, 2009). Both schemes have a strong promarket employment orientation with very little human capital investment.

Short-term training (STT) measures usually last up to three months' maximum. They are supposed to train qualifications and abilities, to test the availability of the unemployed, affirm whether the unemployed is suited for further long-term measures and to provide help in job search. Common programs are e.g., computer classes, language courses, or application training (Caliendo, Mahlstedt, & Mitnik, 2014). Short-term training is neither a strong investment in human capital nor targeted at the reintegration of the unemployed into the labor market. In contrast, long-term training (LTT) programs usually aim at a vocational training degree. Vocational training can last up to three years and aims to remove disadvantages in education and to improve occupational skills of the unemployed (Caliendo et al., 2014). I also include schooling in this category. Vocational training programs aim strongly to both invest into human capital as well as to promote labor market reentry.

Lastly, unemployed are expected to take every necessary step to end their welfare dependency. That means that e.g., declining a suitable job offer or refusing to participate in an ALMP scheme can result in a reduction in benefits or even the loss of benefits (Schneider, 2008). Sanctions (SA) show no investment in human capital, while strongly promoting labor market reentry[2].

3. Impact of ALMP schemes on well-being

Many theories have been established to capture the role of (un)employment for one's well-being and have thereby strived to explain the impact of ALMP schemes on the well-being of

[2] While sanctions are clearly an activation strategy, I am aware that they are not a scheme per se. I speak of sanctions as 'ALMP schemes' or 'programs' in order to use consistent terminology across the paper.

the unemployed. Among the most established ones is the theory of deprivation that, based on their famous Marienthal study, Jahoda and colleagues (1971; 1982) came to develop. According to the theory, individual well-being relies on the fulfillment of (1) time structure, (2) social contacts, (3) engagement in activities meant for collective purposes, (4) status and identity, and (5) regular activity. Today, most individuals fulfill those needs by participating in the labor market, while the unemployed are deprived in those functions and struggle to find adequate substitutes in other areas of life, resulting in low well-being. While Jahoda's theory addresses the different functions of work, the theory does not explain why it is so difficult for the unemployed to substitute the contribution of employment through the participation in ALMP schemes (van Bruggen, 2000).

According to SPF theory, humans actively seek subjective well-being by choosing cost-effective ways to produce it, despite limited information and within the set of resources and constraints they face (Ormel et al., 1999). Subjective well-being is considered as a function of physical and social well-being, the 'universal goals' of human activity, which cannot be produced by themselves but through in total five instrumental goals. Physical well-being is a function of stimulation (i.e., mentally and sensory stimulating activities, physical effort and sports), as well as of comfort (the absence of deleterious stimuli like thirst, hunger, pain, fear etc.). Social well-being is achieved through status (a relative ranking, based on control over scarce resources), behavioral confirmation (the feeling of 'doing the right thing') and affection (i.e., love, friendship, and emotional support through relationships). All five instrumental goals are assumed to have decreasing marginal value to produce subjective well-being (Ormel et al., 1999).

Just like social and physical well-being can only be produced through the first-order instrumental goals, the instrumental goals must be produced, too. This is enabled by lower-order means of production that can be divided into endowments and activities that in turn have

to be produced through resources (for an overview see Figure 2). If an individual lacks the resources necessary to produce a higher-order goal, the production of these resources can become a goal (Ormel et al., 1999). SPF theory states that one production factor can be exchanged for another. The capability to substitute, however, decreases as one moves up in the hierarchy. While physical and social well-being can only be exchanged to a very limited extent and first-order instrumental goals are hard to substitute for as well, because humans strive to realize at least a minimum level of each goal (van Bruggen, 2000), resources can be substituted for each other more easily (Ormel et al., 1999).

Top level	Subjective Well-being				
Universal goals	Physical Well-being		Social Well-being		
First-order instrumental goals	Stimulation/ Activation (optimal level of arousal)	Comfort (absence of physiological needs; pleasant and safe environment)	Status (control over scarce resources)	Behavioral Confirmation (approval for "doing the right things)	Affection (positive inputs from caring others)
Activities and endowments (means of production for instrumental goals) (examples)	Physical and mental activities producing arousal	Absence of pain, fatigue, thirst, hunger; vitality; good housing, appliances, social welfare, security	Occupation, life style, excellence in sports or work	Compliance with external and internal norms	Intimate ties, offering emotional support
Resources (examples)	Physical and mental effort	Food, health care, money	Education, social class, unique skills	Social skills, competence	Spouse, empathy, attractiveness

Figure 2

The hierarchy of social production functions

Source: Ormel et al., 1999: 67.

The substitution of production factors is evaluated in accordance to their effectiveness, following a cost-benefit ratio. Means of production are considered effective if they constitute multifunctional activities, i.e., are producing several instrumental goals (Ormel et al., 1999). How effective the means of production are, differs between individuals and situations. Per Esser

(1999), it depends on, for instance, cultural and institutional circumstances. In the context of western, market-oriented societies, work is of importance to the production of well-being (van der Meer, 2014). Working is a so-called multifunctional activity, because it provides income, which is important to produce comfort (the consumption of goods and services as well as the enjoyment of leisure time) and stimulation (through mental or physical effort). Work furthermore is important to produce status, which depends partly on income, but mostly on the job itself. A high social status produces social approval and thereby subjective well-being. In addition, work provides behavioral confirmation, in societies where working is an important societal norm (van der Meer, 2014) or if the employed is rewarded/recognized for his/her job competence. Lastly, work can provide a feeling of belonging and self-approval and some people might simply find affection in their job (van Bruggen, 2000). The loss of a job has a detrimental effect on subjective well-being, because it directly influences important resources and activities that can produce all five first-order instrumental goals. The effective nature of work in turn makes it especially difficult to find an adequate substitute.

In order to substitute the contribution of employment to the production of well-being through the utilization of ALMP schemes, the schemes must produce the instrumental goals to at least a similar extent. Therefore, it is to be expected that the higher the multifunctionality of the different ALMP schemes, the stronger is their impact on the well-being of the unemployed.

Both wage and start-up subsidies contribute to the production of comfort (through either funding or earnings) and a high amount of increase in stimulation through the work itself. Additionally, as both result in actual work, it is expected that both measures increase the amount of behavioral confirmation produced as well as status. An increase in affection is possible as well. Because of their high multifunctionality, they are expected to have the highest positive impact on well-being in comparison to other ALMP schemes. Short-term training programs can produce physical or mental effort (stimulation). Because, however, they are not very effective

in terms of multifunctionality, their impact is expected to be positive yet rather weak. Long-term training programs can provide a high amount of mental and/or physical stimulation as well as behavioral confirmation, if close relationships (like family, friends etc.) value the decision. The impact of long-term training is expected to be positive, yet rather weak, since its multifunctionality is low. Sanctions, i.e., reduced benefits, lead to a loss in income and, therefore, to a reduction in comfort. Furthermore, sanctions constitute a reduction in behavioral confirmation, as they penalize wrong behavior. Because sanctions hinder the production of instrumental goals and their multifunctionality is relatively low, their impact is expected to be both negative and rather weak.

4. Data

Assessing the effect of ALMP participation on well-being, I use a representative survey of unemployment entrants in Germany. The IZA Evaluation Data Set contains a 9% random sample of individuals between 16 and 54 years of age, who entered unemployment between June 2007 and May 2008 and who received, or were eligible to receive, unemployment benefit I, and were hence subject to the regulations of the German social code book (SGB) III. The first interview took place closely after the entry into unemployment. Based on the first interview, two further interviews followed, after one and three years, respectively (Arni, Caliendo, Künn, & Zimmermann, 2014). Besides the large sample size of newly-unemployed, this dataset has the advantage of containing a variety of non-standard questions about search behavior, social networks, and psychological factors etc. Furthermore, it distinguishes among different ALMP schemes, facilitating a more detailed analysis of the impact of ALMP participation on well-being.

For this study, I use the first two waves. The first wave (t_0) is conducted on average after 2.20 months (SD = 0.83), and the second wave (t_1) on average after 12.57 months (SD = 0.62) after

entry into unemployment. I define respondents as participants if they participate in one of the researched ALMP programs *after* t_0 and within a twelve months' time window after their unemployment entry. I define respondents as non-participants (open unemployment) if they do not participate in any ALMP program within twelve months after their entry into unemployment[3]. Participants are categorized according to their first program, because further program participation is seen as the outcome of the first program. Non-participants constitute the control group in all analyses. I add a random program start procedure as mentioned in Lechner (1999). I randomly draw from the sample distribution of elapsed unemployment durations until program start of the participants in order to obtain hypothetical durations for the non-participants. I then discard non-participants whose unemployment duration is shorter than their hypothetical time until program start. On average, participants start programs after 4.07 months (SD = 2.89). The reduction in sample size due to the random program start procedure differs between 3.3% (reemployment) and 8.8% (sanctions). All covariates in the matching process are measured at t_0, while the outcome is measured at t_1.

Individual well-being is captured by the question; "How satisfied are you currently with your life?" on a scale from 0, "not satisfied at all", to 10, "wholly satisfied". Life satisfaction, defined as the cognitive evaluation of one's satisfaction with life and conceptualized as one dimension of overall well-being (Diener, Suh, Lucas, & Smith, 1999) therefore constitutes a proxy for individual well-being. It captures the concept of 'how one is doing' in life, which is arguably of greater interest when evaluating the impact of ALMP schemes than e.g., happiness.

Within the estimation sample, the subsequent analysis is constructed within gender-groups and within regional groups, i.e. East and West Germany, to examine potential effect heterogeneity.

[3] The choice of the period for the split is arbitrary and could be debated (see Sianesi, 2004); nevertheless, it is a standard procedure in the evaluation of ALMP. In my case, choosing 12 months ensures that I observe individuals for a sufficiently long time window. Increasing the period has the disadvantage that timing of treatment is not considered, which could possibly represent unmeasured underlying characteristics of the respondents, and therefore bias the analysis.

Activation efforts in East Germany might be more focused on removing demand-side barriers, through vocational training or employment subsidies (Lechner & Wunsch, 2006), in comparison to West Germany. Further, structural differences in the labor markets of East and West Germany might influence both ALMP participation as well as well-being levels of the unemployed. I further separate by gender based on previous findings suggesting that women are less likely to be assigned to ALMP programs, irrespective of expected program success (Müller & Kurtz, 2003). Further, woman might benefit less in their well-being from participation, due to either constraints with regard to familial issues, or because women tend not to be as much affected by unemployment in their well-being (Clark, Georgellis, & Sanfey, 2001; Lucas et al., 2004; van der Meer, 2014) and therefore the substitution of work for the production of their well-being is not as great as that for men, resulting in lower increases in well-being in comparison to men. Due to the small sample size available for unemployed being subject to only sanctions and no other ALMP scheme, sanctions could not be examined in the subgroup analyses and are therefore omitted for the second part of the analysis.

Table 1 (see supplementary materials) shows differences with respect to the socio-demographic variables, the labor market history and the personality traits of the participants and the non-participants, measured at t_0. ALMP participants are more likely to be male, higher educated, healthier, spent less time in unemployment in the past, have more likely been formerly (self-)employed and received a higher income before unemployment than non-participants. Interestingly, participants also tend to have a higher share of respondents evaluating their reemployment probability as (very) likely, in comparison to non-participants and are more likely to show a lower level of neuroticism, a higher level of conscientiousness and internal locus of control. Looking at individual differences with regard to the specific programs, respondents receiving a wage subsidy are more likely to be older, have on average spent the most time in employment during their lifetime and life in areas with a high share of ALMP

scheme entries per unemployed. Respondents in subsidized self-employment are more likely to be middle-aged, obtained a university degree and have on average spent the least time in unemployment, while having the highest income prior to unemployment. Participants in long-term training as well as respondents receiving sanctions tend to be younger, single, childless, and have just come out of school, an apprenticeship etc. Participants in short-term training are particularly found in regions with high ALMP scheme entries per unemployed. Respondents who become reemployed tend to be younger, without children and with less time spent in unemployment than non-participants. Overall, a selectivity bias becomes apparent.

5. Identification strategy

In the case of observational data and in the evaluation of ALMP programs, participants are most likely self-selected or selected by caseworkers per different criteria. Among these criteria are e.g. the so-called 'cream-skimming', the selection of unemployed with high labor market chances, or 'dumping processes', the selection of unemployed with low labor market chances (Hohmeyer & Kopf, 2009). To estimate causal treatment effects despite a selectivity bias, matching methods have been strongly in favor in the recent literature on the evaluation of labor market programs (cf. Lechner, 2002).

Difference-in-differences propensity score matching is used to estimate the causal effect of ALMP participation on individual well-being. Propensity score matching (Caliendo & Kopeinig, 2008; Caliendo et al., 2014) entails the pairing of the treated and the non-treated who are similar in their pre-treatment characteristics in order to compare their post-treatment outcomes. The DID-approach (Heckman, Ichimura, & Todd, 1997) estimates the treatment effect by the change in outcome difference between two groups, removing any remaining time-invariant differences in unobservable characteristics. Combining matching with a difference-in-differences estimator has the advantage that I can control both for observable confounders

as well as for unobservable, time-invariant confounders, summing the advantages of both approaches.

Propensity scores are estimated using several binomial logits, comparing each group of participants with non-participants (see Table 2 in the supplementary materials). The best matching estimator was chosen with regard to the best balancing quality achieved among my covariates. The balancing quality is tested using the mean standardized bias (Rosenbaum & Rubin, 1985) and t-tests, both with highly satisfactory results. Individuals are then matched on the propensity score to estimate the 'average treatment effect for the treated' (ATT) and the well-being outcomes of the treated are compared to those individuals who have very similar observable pre-treatment characteristics but have not participated in an ALMP scheme. Thus, matching is conducted using kernel matching with an Epanechnikov kernel and a bandwidth of 0.06, which not only led to a substantial reduction in imbalance across treatment groups in all samples[4], but furthermore has shown to produce reliable estimates under several data settings (Huber, Lechner, & Wunsch, 2013). This nonparametric estimator matches treatment units with a weighted average of all controls, weighting down the cases in the control group that have a long distance from the case in the treatment group. The DiD estimator is then estimated as the average changes in the pre- and post-treatment well-being between both groups, measured at t_0 and t_1, respectively.

Furthermore, I implement a sensitivity analysis in the follow-up of the main analysis in order to quantify the effects determined by unobservable bias of the data.

[4] While kernel matching provided the best matching quality, I also tested for nearest neighbors matching using 1 and 3 nearest neighbors, radius matching with a caliper of 0.01 and 0.03, and mahalanobis matching. Among them, radius matching provided less, yet sufficient, matching quality. Choosing radius matching with a caliper of 0.03 only leads to a change in my results at the second or third decimal places. I therefore conclude that my estimates are robust with regard to the chosen matching algorithm.

6. Plausibility of the matching assumption

One of the most important assumption in propensity-score matching is the so-called conditional independence assumption (CIA); which states that conditional on observed characteristics, the outcomes are mean independent of the treatment status (Guo & Fraser, 2015). In other words, a causal interpretation rests on the assumption that we observe all variables that influence both participating in an ALMP scheme and the potential outcome. The CIA is a strong assumption and its justification depends crucially on the available data.

In my application, I greatly benefit from the vast amount of ALMP evaluation literature and thus consider which participation-related factors are likely to also affect individual well-being. The importance of controlling for socio-demographic characteristics and information on past labor market history is well-established (Lechner & Wunsch, 2013), because they are approximating unobserved labor market attachment and therefore employment prospects, which influence the decision to participate in these programs (Sianesi, 2004). Arguably, including socio-demographic characteristics and indicators of individual labor market attachment should reduce any bias that may derive from contingent circumstances influencing the well-being of the unemployed. In terms of socio-demographic characteristics I include age, gender, marital status (or cohabiting), education, professional training, migration background, region (East/West Germany), if the respondent is handicapped, as well as the presence and age of (the youngest) child(ren) in the household. In terms of labor market attachment, I include the years spent in employment and unemployment, respectively, the employment status before unemployment, the subjective probability of reemployment ((very) likely vs. (very) unlikely) as well as the amount of the last net income, the employment status of the partner, and the share of ALMP program entries per unemployed in the respondents' place of residence. Further,

information on personality traits as well as (internal) locus of control are included[5], which have shown to be of importance for the decision to participate in an ALMP program (Caliendo et al., 2014), but are furthermore crucial for individual well-being (Bucher, 2009).

The question remains if inference about treatment might be altered by unobserved factors. Therefore, the magnitude of a possible 'hidden bias' must be considered. While the CIA cannot be directly tested, the bounding approach by Rosenbaum (2002) provides evidence on the degree to which any significant results of the analysis rely on this untestable assumption. Rosenbaum bounds thereby measure how strong the impact of an omitted variable must be in order to alter the inference about the treatment effect (Caliendo & Kopeinig, 2008).

7. Main results and sensitivity

Figure 3 shows the average well-being among the participants in different ALMP schemes. Overall, it shows that the well-being is highest among the self- and reemployed, while it is the lowest among respondents receiving sanctions. All ALMP groups experience a positive change in well-being after one year, which is in line with prior research on the trajectories of well-being after unemployment (Lucas et al., 2004), while there is no considerable change in well-being among non-participants. Respondents in short-term training report the strongest increase in well-being in comparison to all other respondents. All results show, however, that well-being levels for ALMP participants differ across all groups and are changing across time. The question remains, however, whether this change is due to the participation in the specific ALMP

[5] Personality traits included neuroticism, openness, extraversion and conscientiousness. Agreeableness is discarded due to too many missing items. Responses for each dimension are averaged and the results standardized. Locus of control, the generalized expectancy about internal versus external control of reinforcement (Rotter, 1966), is measured via overall ten questions. In line with Caliendo, Cobb-Clark, & Uhlendorff (2010), conducting a factor analysis has shown that nine out of the ten questions load onto two factors, which can be conceptualized as internal and external locus of control. While external locus of control captures the perception that everything that happens is beyond one's control, individuals with an internal locus of control are confident that outcomes are contingent on their decisions and behavior. One question is discarded, because it does not load onto any factor. Assuming that external and internal locus of control can be seen as the opposite ends of one scale, the questions regarded as external locus of control were reversed. Then the responses to all nine questions were averaged and the results standardized.

schemes. I therefore proceeded with a DiD-Matching procedure to provide a causal explanation on the impact of the different ALMP schemes. Note however, that causality can only be established if the CIA holds, i.e. all necessary covariates have been included into the matching procedure and a selection bias disappears.

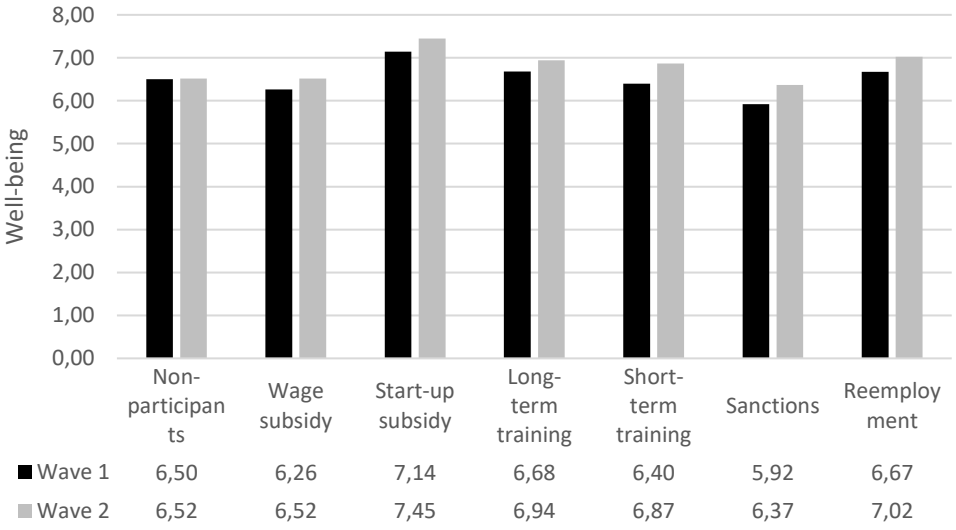

Figure 3

Average well-being among (non-)participants and reemployed

Source: IZA Evaluation Dataset, own calculations.
Note: Well-being is measured on a scale from 0 “not satisfied at all” to 10 “wholly satisfied”.

According to the SPF theory, work is the most important instrument to produce well-being, due to its multifunctional nature and the prevailing employment norm in western societies. The highest impact on well-being was expected to be found among ALMP schemes that produce well-being through similar instrumental goals as employment. Indeed, the ALMP schemes most similar to employment show the highest and most robust impact on the well-being of the unemployed, namely wage subsidies and self-employment. Both ALMP programs were expected to be very effective in terms of multifunctionality, producing comfort through an increase in income, stimulation through the mental or physical effort, status through the job itself, behavioral confirmation as well as possibly affection.

Table 3

Estimated effects of ALMP participation on individual well-being (DID-PSM)

	ATT_{DD}	s.e.	$N_{Treatment}$	$N_{Control}$	Common support treated[1]	Γ	Mean SB
Wage subsidy	0.86	0.19	177	857	8	1.9	1.5
Start-up subsidy	0.73	0.21	122	881	3	1.8	2.5
Long-term training	0.39	0.15	287	881	6	1.2	1.3
Short-term training	0.47	0.13	348	881	3	1.4	0.7
Sanctions	0.70	0.27	92	881	0	1.4	2.0
Reemployment	0.74	0.11	1,588	881	16	2.2	1.8

Source: IZA Evaluation Dataset, own calculations.

Note: The treatment effect was estimated using kernel matching on the propensity score with an Epanechnikov kernel. Standard errors are bootstrapped using 300 replications.

[1]Number of treated excluded from the estimation due to lacking overlap.

Table 3 shows the results of the DiD-Matching analysis. On average, respondents receiving a wage subsidy show an increase of about 0.86 scale points, while respondents in subsidized self-employment show an increase of about 0.73 scale points in their well-being (on a scale from 0 to 10). These results are robust, for the calculated Rosenbaum bounds reveal that Γ would have to be as large as 1.9 and 1.8, respectively, before I would conclude that the estimated well-being effects were not statistically significant from zero. This means that one subject would need to be about two times as likely to participate in an ALMP scheme because of an unmeasured confounder that is not included in this study, for the results to become insignificant. For comparison, a study on the impact of unemployment on well-being reports a drop in well-being of on average less than one point on the same scale (Lucas et al., 2004). Given these results, employment-like schemes appear to be able to substitute employment in its production of well-being to a substantial amount.

Both long-term and short-term training show a positive impact on well-being. The impact of sanctions is, surprisingly, also positive. The sample size of respondents receiving sanctions, however, is very small and I cannot rule out the possibility that at the time the well-being of the respondents is measured, the sanctions have not already been in place for a long time[6]. Lastly, reemployment has a positive impact on well-being. While I cannot draw any causal conclusions from a comparison of the estimates among the different ALMP schemes, it remains interesting that the impact of reemployment appears to be very similar to that of wage subsidies and self-employment. This is particularly interesting, when we put these results in the context of a study by Knabe, Schöb & Weimann (2017), who found that the affective well-being of unemployed participating in a public-employment-scheme is higher than for both those in open unemployment and in employment. They explain it by the 'holiday from unemployment' effect,

[6] It would be useful to examine the impact of all ALMP schemes on well-being while differentiating among respondents still participating in the program vs. those who have already finished it. Unfortunately, dividing the sample by whether respondents are still participating, leads to a strong reduction in sample size per group and moreover strongly decreased matching quality, making the results too unreliable to be analyzed further.

according to which the temporary change in the environment yields high utility for the unemployed but would subside if the program was permanent. While I cannot directly compare the effect sizes across the different models, I propose the possibility that employment-like schemes such as wage subsidies and subsidized self-employment are promoting such an effect and are therefore as important to the well-being of the unemployment as is employment itself.

Distinguishing between East and West Germany and male and female participants, respectively, some interesting effect heterogeneity appears, indicating that context highly matters in the way the unemployed interpret their life as going well. Note that in both subgroup-analyses the sample sizes get smaller to such a degree, that significance in the results is less likely to be found. The results show that wage subsidies have a positive impact on the well-being of both East and West German participants, while stronger for male than for female respondents. Interestingly, subsidized self-employment shows a significant positive impact for participants residing in West Germany and only for male respondents, while the impact is insignificant in East Germany and for women. Although start-up subsidies have been found to be highly effective in East Germany (Caliendo, 2009), it is possible that, given the structurally worse labor market conditions in East Germany, respondents might not be as sure of the long-term success of their business, hindering changes in their well-being. Furthermore, we have to consider that in particular for the subgroup-analysis of East German respondents, the MSB is reported at 5.4% and therefore slightly above the suggested threshold of around 3-5% (Caliendo & Kopeinig, 2008). Looking at a two-sample t-test to see whether there are any significant differences in covariate means across the groups (Rosenbaum & Rubin, 1985) shows, however, that both samples appear to be very balanced as no significant differences are found for any of the covariates. I therefore conclude that while these results should be handled with caution, there is indication of successful bias reduction due to the matching procedure. Long-term training appears to only increase the well-being of East German and male participants, while

Table 4

Estimated effects of ALMP participation on individual well-being (DID-PSM)

	East Germany							West Germany						
	ATT_{DD}	s.e.	$N_{Treatment}$	$N_{Control}$	C.s.t[1]	Γ	Mean SB	ATT_{DD}	s.e.	$N_{Treatment}$	$N_{Control}$	C.s.t[1]	Γ	Mean SB
Wage subsidy	0.94	0.32	75	320	0	1.6	3.6	0.76	0.24	103	517	7	1.5	2.1
Start-up subsidy	0.79	0.49	28	346	9	1	5.4	0.76	0.21	88	467	0	2.1	3.4
Long-term training	0.49	0.25	115	340	8	1.2	2.1	0.34	0.21	170	535	0	1.1	1.9
Short-term training	0.29	0.24	139	346	0	<1	2.6	0.63	0.18	210	535	2	1.7	1.3
Sanctions	0.61	0.50	35	277	0	<1	6.6	0.78	0.34	55	535	2	1.5	3.0
Reemployment	0.69	0.16	589	346	17	1.8	3.1	0.75	0.14	984	535	14	2.1	2.5

Source: IZA Evaluation Dataset, own calculations.

Note: The treatment effect was estimated using kernel matching on the propensity score with an Epanechnikov kernel. Standard errors are bootstrapped using 300 replications.

[1]Number of treated excluded from the estimation due to lacking overlap.

Table 5

Estimated effects of ALMP participation on individual well-being (DID-PSM)

	Men							Women						
	ATT_{DD}	s.e.	$N_{Treatment}$	$N_{Control}$	C.s.t[1]	Γ	Mean SB	ATT_{DD}	s.e.	$N_{Treatment}$	$N_{Control}$	C.s.t[1]	Γ	Mean SB
Wage subsidy	1.22	0.33	102	364	1	2.4	2.3	0.50	0.28	81	473	1	1	2.5
Start-up subsidy	1.28	0.35	57	322	6	2.6	3.0	0.33	0.26	62	496	0	1	2.3
Long-term training	0.64	0.25	143	373	7	1.4	1.5	0.15	0.23	143	508	0	<1	2.1
Short-term training	0.59	0.22	147	373	3	1.5	1.8	0.34	0.19	201	508	0	1	1.3
Sanctions	1.18	0.39	50	334	3	1.5	3.8	0.27	0.39	38	468	1	<1	2.9
Reemployment	0.88	0.16	822	373	10	2.2	2.0	0.55	0.15	767	508	5	1.6	2.7

Source: IZA Evaluation Dataset, own calculations.

Note: The treatment effect was estimated using kernel matching on the propensity score with an Epanechnikov kernel. Standard errors are bootstrapped using 300 replications.

[1]Number of treated excluded from the estimation due to lacking overlap.

short-term training shows a positive impact on the well-being of male and West German participants. Again, sanctions show a positive impact both for male and for West German participants. It is possible that sanctions might not measure the impact of sanctions per se but could hint at the possibility that they resulted in faster labor market entry and thereby increased the well-being of the participants, either due to an ex-ante (Grüttner, Moczall, & Wolff, 2016) or ex-post effect (van den Berg, Uhlendorff, & Wolff, 2014). Further, reemployment shows a consistently positive impact on well-being for both regions and genders.

Overall, what becomes apparent, is, that there is no significant difference in well-being among women who participate in ALMP schemes and those who do not. That there are almost no ALMP schemes that substantially impact the well-being of women might be because women tend not to be not as affected in their well-being in case of job loss (Clark et al., 2001; Lucas et al., 2004). It is also likely, however, that women may find it more difficult to balance both job finding as well as family obligations, such as child care, resulting in negligent effects of ALMP scheme participation on their well-being.

8. Conclusion

While research so far has been focusing on the economic outcomes of ALMP participation, it is of importance to examine their psychological impact, for well-being has not only become an overt goal of public policy (Helliwell et al., 2016), but furthermore found to be related to their overall reemployment chances (Krause, 2013). Examining the impact of ALMP scheme participation on well-being, I conclude that recipients of wage subsidies and respondents in subsidized self-employment show a strong and robust increase in well-being. Results are therefore in line with my theoretical expectations that those programs will show the strongest impact on well-being, whose characteristics are closest to regular employment. To raise the well-being of the unemployed and alleviate the detrimental consequences of unemployment,

employment-like schemes, which are oriented toward the reintegration of the unemployed, appear to be the most promising way. Indeed, both schemes appear to be able to alter the experience of unemployment among the unemployed. This is interesting, given that the scheme most oriented toward human capital investment (see Figure 1), namely long-term and short-term training, show a weak, yet significant, impact on the well-being of the unemployed. With the rise of the 'social investment welfare state', human capital investment has become a new kind of 'panacea' to combat unemployment, with a vast amount of literature stressing its importance (c.f. Morel et al., 2012). Instead, the results show that schemes geared toward labor market integration have a stronger impact on the well-being of the unemployed. Overall, I find interesting effect heterogeneity with respect to region and gender. My results indicate that context as well as individual life circumstances highly matter for how strongly ALMP participation is able to improve the well-being of the unemployed.

It remains particularly of interest that the impact of wage subsidies and subsidized self-employment on well-being appears to be as high as the impact of reemployment. While I cannot draw any causal conclusions from these results due to my research design, I propose that these results might potentially be another indication of what Knabe et al. (2017) call the 'holiday from unemployment' effect. Overall, it appears that both programs are viewed by the unemployed as particular chances of improving their life.

I am aware that my study is not without limitations. First, by focusing on the comparison of participants and non-participants, I cannot draw any conclusions about the impact of one program vs. another program and whether the differences in the impact of the programs are to be attributed to the programs or the selection of participants. I encourage future research to examine the differences among the programs and reemployment using the appropriate research design in order to test e.g. the 'holiday from unemployment' effect and contribute to our understanding of the impact of the programs. Second, my observation period covers the financial crisis and the second wave was conducted around the start of the great recession in

Germany. Research has indicated that ALMP programs are more effective in times of high unemployment (cf. Lechner & Wunsch, 2009), because the impact of the 'lock-in' effect (the decreased amount of job search during program participation) is less detrimental during times of high unemployment, where job finding takes longer than during times of low unemployment. The decreased lock-in effect of the participations could potentially increase the subjective benefit of the participation for the respondents, leading to upwardly biased results concerning their well-being. This could, however, be easily tested by expanding this analysis with a data set that covers a whole business cycle. Again, I encourage future research to examine whether the impact of ALMP scheme participation on well-being changes with regard to the business cycle.

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10.Supplementary materials

Table 1

Descriptive statistics of participants and non-participants

	NP	WS	SSE	LTT	STT	SA	RE
Socio-demographic characteristics							
Female	0.58	**0.44**	0.50	**0.49**	0.57	**0.42**	**0.48**
Age							
Less than 25 years	0.17	0.13	**0.09**	**0.35**	**0.11**	**0.36**	0.17
Between 25 and 34 years	0.19	0.18	0.24	0.21	**0.25**	0.24	**0.29**
Between 35 and 44 years	0.27	0.22	**0.38**	0.27	0.30	0.22	0.28
Between 45 and 56 years	0.37	**0.48**	0.30	**0.18**	0.34	**0.18**	**0.26**
Married (or cohabiting)	0.52	0.51	0.51	**0.31**	0.53	**0.37**	**0.41**
Migration background	0.19	**0.12**	0.18	0.16	0.18	0.21	0.17
West Germany	0.61	0.59	**0.70**	0.58	0.60	0.62	0.62
Children and age of youngest							
No children	0.60	0.68	**0.50**	**0.70**	0.59	0.70	**0.69**
Age < 2 years	0.03	**0.00**	**0.06**	0.01	0.04	0.05	0.02
Age 2-5 years	0.14	**0.08**	0.14	**0.09**	0.13	0.10	**0.09**
Age 6 – 12 years	0.13	0.09	0.16	0.10	0.14	0.09	0.10
Age > 12 years	0.10	0.15	0.13	0.10	0.11	0.07	0.11
School leaving degree							
Lower secondary school, special needs	0.34	0.38	**0.23**	**0.19**	**0.25**	0.27	**0.28**
Middle secondary school	0.42	0.43	0.37	0.46	0.47	0.42	0.42
Specialized upper secondary school	0.25	0.19	**0.40**	**0.35**	0.28	0.30	**0.30**
Professional training							
None	0.14	**0.03**	**0.06**	0.18	**0.08**	0.14	**0.07**
Internal or external professional training	0.67	**0.75**	**0.58**	0.65	0.70	0.70	0.68
Technical college or university degree	0.19	0.22	**0.35**	0.17	0.23	0.16	**0.25**
Health disability	0.09	0.09	**0.01**	0.07	**0.05**	0.07	**0.06**

	NP	WS	SSE	LTT	STT	SA	RE
Labor market attachment							
Employment status before unemployment							
(Self-)employment	0.56	**0.72**	**0.75**	0.54	**0.65**	0.64	**0.69**
Subsidized (self-)employment	0.08	0.12	0.06	**0.05**	0.06	**0.02**	0.07
School, apprentice, military etc.	0.13	0.08	**0.05**	**0.29**	0.11	**0.22**	0.15
Maternity	0.08	**0.02**	0.09	**0.05**	0.07	0.04	**0.03**
Other	0.14	**0.05**	**0.05**	**0.08**	0.11	0.08	**0.06**
Years spent in unemployment (mean)	1.58	**1.15**	**0.82**	**1.19**	**1.15**	1.10	**1.13**
Years spent in employment (mean)	16.22	**19.34**	17.22	**14.34**	17.39	**14.15**	**15.37**
Subjective probability of reemployment (1 = (highly) likely)	0.74	**0.92**	0.82	**0.81**	**0.85**	**0.89**	**0.93**
Last income (mean)	1191.72	1227.95	**1715.23**	1186.03	1246.54	1278.38	**1334.91**
Partners' employment status							
No partner	0.28	0.29	**0.15**	0.34	0.26	**0.41**	0.31
Full-time employed	0.49	0.48	0.55	**0.37**	0.52	**0.37**	**0.45**
Part-time employed	0.05	0.08	**0.16**	0.03	0.04	0.02	0.06
School, apprentice etc.	0.04	0.03	0.01	**0.13**	0.04	0.04	**0.05**
Unemployed	0.03	0.04	0.03	0.04	0.03	0.07	0.04
Other	0.11	0.09	0.10	0.09	0.11	0.09	0.09
Regional ALMP intensity (mean)	16.07	**17.37**	15.48	16.30	**16.77**	16.01	16.14
Personality traits							
Neuroticism (standardized, mean)	0.12	0.08	**-0.15**	0.07	0.12	**-0.15**	**0.02**
Openness (standardized, mean)	-0.02	-0.06	0.02	0.04	0.00	0.08	-0.06

	NP	WS	SSE	LTT	STT	SA	RE
Extraversion (standardized, mean)	0.02	0.01	0.12	-0.02	0.14	0.11	0.03
Conscientiousness (standardized, mean)	0.02	**0.16**	0.12	0.08	**0.15**	0.05	**0.10**
Internal locus of control (standardized, mean)	-0.15	-0.08	**0.35**	**0.04**	-0.11	**0.11**	**0.01**
N	881	185	125	294	352	92	1,608

Source: IZA Evaluation Dataset, own calculations.

Note: All numbers are shares, unless indicated otherwise, measured at entry into unemployment. Bold numbers indicate statistically significant differences between each group of participants and non-participants at the 5%-level based on a two-tailed t-test on equal means. NP – non-participants; WS – recipients of wage subsidies; SSE – recipients of start-up subsidies; LTT – participants in long-term training; STT – participants in short-term training; SA – recipients of benefit sanctions; RE – respondents becoming reemployed.

Table 2

Logistic regressions for prediction of ALMP participation

	Wage subsidy	Start-up subsidy	Long-term training	Short-term training	Sanctions	Reemployment
	OR (*SE*)	OR (*SE*)	OR (*SE*)	OR (*SE*)	OR (*SE*)	OR (*SE*)
Socio-demographic characteristics						
Female	-0.40 (0.21)	0.11 (0.27)	-0.08 (0.17)	0.01 (0.16)	0.23 (0.27)	-0.07 (0.11)
Age						
Between 25 and 34 years	0.23 (0.34)	0.09 (0.43)	-0.47* (0.24)	0.52* (0.26)	-0.93* (0.36)	0.40* (0.16)
Between 35 and 44 years	0.21 (0.39)	-0.09 (0.48)	-0.39 (0.28)	0.22 (0.29)	-1.46** (0.45)	0.08 (0.19)
Between 45 and 56 years (Ref. group: Less than 25 years)	0.21 (0.45)	-0.72 (0.57)	-1.34** (0.34)	-0.05 (0.33)	-2.13*** (0.55)	-0.43 (0.22)
Married (or cohabiting)	-0.08 (0.25)	-0.63* (0.28)	-0.29 (0.22)	0.06 (0.19)	0.52 (0.36)	-0.13 (0.13)
Migration background	-0.44 (0.27)	-0.11 (0.28)	-0.14 (0.20)	-0.12 (0.18)	0.03 (0.31)	-0.12 (0.12)
West Germany	0.32 (0.20)	0.33 (0.26)	0.12 (0.17)	0.12 (0.15)	0.12 (0.28)	0.19 (0.11)
Children and age of youngest						
Age < 2 years	--[1]	1.17* (0.57)	-0.73 (0.60)	0.48 (0.41)	0.94 (0.66)	0.02 (0.33)
Age 2-5 years	-0.06 (0.39)	0.31 (0.40)	-0.47 (0.31)	0.02 (0.26)	-0.33 (0.46)	-0.37* (0.19)
Age 6 – 12 years	-0.38 (0.32)	0.36 (0.33)	-0.28 (0.26)	0.09 (0.22)	-0.36 (0.43)	-0.35* (0.16)
Age > 12 years (Ref. group: No children)	0.45 (0.28)	0.68 (0.36)	0.08 (0.26)	0.22 (0.23)	-0.37 (0.48)	0.10 (0.16)

	Wage subsidy	Start-up subsidy	Long-term training	Short-term training	Sanctions	Reemployment
	OR (*SE*)	OR (*SE*)	OR (*SE*)	OR (*SE*)	OR (*SE*)	OR (*SE*)
School leaving degree						
Middle secondary school	-0.19 (0.21)	0.14 (0.28)	0.61** (0.19)	0.34* (0.17)	0.32 (0.29)	0.11 (0.11)
Specialized upper secondary school (Ref. group: Lower secondary school, special needs)	-0.50 (0.28)	0.37 (0.33)	1.10*** (0.22)	0.39 (0.21)	0.71* (0.34)	0.12 (0.14)
Professional training						
Internal or external professional training	1.42** (0.45)	0.36 (0.42)	-0.02 (0.22)	0.47 (0.24)	0.21 (0.35)	0.61*** (0.15)
Technical college or university degree (Ref. group: None)	1.56** (0.49)	0.50 (0.48)	-0.33 (0.29)	0.47 (0.29)	-0.24 (0.47)	0.71*** (0.19)
Health disability	-0.00 (0.31)	-1.96 (1.03)	0.12 (0.29)	-0.50 (0.28)	0.21 (0.47)	-0.22 (0.18)
Labor market attachment						
Employment status before unemployment						
Subsidized (self-)employment	-0.00 (0.28)	-0.35 (0.41)	-0.54 (0.32)	-0.59* (0.27)	-1.69* (0.75)	-0.37* (0.17)
School, apprentice, military etc.	-0.77* (0.35)	-1.45** (0.52)	0.05 (0.23)	-0.22 (0.25)	-0.60 (0.38)	-0.40* (0.16)
Maternity	-1.08 (0.64)	-0.86 (0.49)	-0.08 (0.40)	-0.55 (0.31)	-1.04 (0.68)	-1.29*** (0.26)
Other (Ref. group: (Self-)employment)	-1.10** (0.37)	-0.98* (0.46)	-0.39 (0.26)	-0.22 (0.22)	-0.58 (0.43)	-0.82*** (0.16)
Years spent in unemployment	-0.07 (0.05)	-0.13 (0.07)	-0.03 (0.03)	-0.07* (0.03)	-0.01 (0.05)	-0.03 (0.02)
Years spent in employment	-0.00 (0.01)	0.02 (0.02)	0.01 (0.01)	0.01 (0.01)	0.01 (0.02)	0.00 (0.01)

	Wage subsidy	Start-up subsidy	Long-term training	Short-term training	Sanctions	Reemployment
	OR (*SE*)	OR (*SE*)	OR (*SE*)	OR (*SE*)	OR (*SE*)	OR (*SE*)
Subjective probability of reemployment	1.37***	0.16	0.09	0.66***	0.75*	1.29***
	(0.30)	(0.27)	(0.18)	(0.18)	(0.27)	(0.13)
Last income	0.04	0.67**	0.01	0.13	0.44	0.29**
	(0.19)	(0.22)	(0.13)	(0.13)	(0.24)	(0.09)
Partners' employment status						
Full-time employed	0.18	0.79**	-0.01	0.06	-0.24	0.14
	(0.26)	(0.33)	(0.21)	(0.20)	(0.33)	(0.13)
Part-time employed	0.09	1.37**	-0.28	-0.50	-1.24	0.10
	(0.41)	(0.43)	(0.42)	(0.37)	(0.80)	(0.23)
School, apprentice etc.	-0.17	-0.88	0.74*	0.30	-0.73	0.21
	(0.54)	(1.07)	(0.29)	(0.37)	(0.59)	(0.24)
Unemployed	0.20	0.84	0.46	-0.09	0.60	0.21
	(0.50)	(0.63)	(0.39)	(0.39)	(0.54)	(0.26)
Other (Ref. group: No partner)	-0.36	0.20	0.21	-0.17	-0.69	-0.09
	(0.38)	(0.48)	(0.30)	(0.28)	(0.53)	(0.19)
Regional ALMP intensity	0.05**	0.00	0.02	0.03*	0.01	0.02
	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)	(0.01)
Personality traits						
Neuroticism	0.06	0.04	0.03	0.07	-0.19	0.02
	(0.34)	(0.12)	(0.08)	(0.07)	(0.03)	(0.05)
Openness	-0.12	-0.05	-0.07	-0.12	0.04	-0.15**
	(0.10)	(0.12)	(0.08)	(0.08)	(0.14)	(0.05)
Extraversion	-0.10	-0.00	-0.07	0.09	0.11	-0.00
	(0.11)	(0.14)	(0.09)	(0.08)	(0.15)	(0.06)
Conscientiousness	0.30*	-0.01	0.24*	0.18	0.11	0.17*
	(0.14)	(0.17)	(0.11)	(0.11)	(0.18)	(0.07)
Internal locus of control	0.01	0.39**s	0.12	-0.02	0.05	0.00
	(0.10)	(0.12)	(0.08)	(0.07)	(0.13)	(0.05)

	Wage subsidy	Start-up subsidy	Long-term training	Short-term training	Sanctions	Reemployment
N	1042	1006	1175	1233	973	2489
Pseudo-R^2	0.12	0.18	0.10	0.05	0.12	0.11

Source: IZA Evaluation Dataset, own calculations.

Note: * $p < .05$, ** $p < .01$, *** $p < .001$.

[1] Excluded from the analysis because it predicts failure perfectly.

Study 2

Can life satisfaction predict reemployment?

Evidence from German panel data

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Abstract

While life satisfaction has been identified as an important predictor of occupational success, the question of whether it might contribute to reemployment success among unemployed individuals has received much less research attention. Contrasting three theoretical perspectives (motivation theories, positive psychology, and the optimum level of well-being literature), we explored whether life satisfaction has a negative, a positive, or a non-monotonic effect on the likelihood of reemployment. We used large-scale panel data from Germany that gave us the possibility to monitor unemployed individuals' life satisfaction and labor market outcomes for 10 years. Results of a multi-level discrete-time hazard analysis supported the optimum level of well-being perspective providing evidence for an inverted-U-shaped association between life satisfaction and reemployment probability. Moderate levels of life satisfaction were associated with a stronger likelihood of reemployment than lower or higher levels of life satisfaction. This effect remained robust against controlling for individuals' socio-economic characteristics, labor market experience and the Big Five personality traits.

1. Introduction

Of all labor market experiences, unemployment has a particularly aversive and long-lived impact on subjective well-being (Lucas, Clark, Georgellis, & Diener, 2004). Studies have repeatedly shown that unemployed individuals have a lower life satisfaction and positive affect and are more vulnerable to depression and other mental health problems than their employed counterparts (McKee-Ryan, Song, Wanberg, & Kinicki, 2005; Paul & Moser, 2009; Wanberg, 2012; Winkelmann & Winkelmann, 1998). The adverse effect of unemployment on well-being has been shown to persist even after reemployment (referred to as "scarring") (Lucas et al., 2004) and to negatively contaminate the well-being of unemployed individuals' close ones (Luhmann, Weiss, Hosoya, & Eid, 2014) and of entire communities (De Neve & Ward, 2017). While the negative effect of unemployment on life satisfaction has received strong empirical support in existing studies, the role of life satisfaction in the process of reemployment remains relatively understudied, with existing studies providing mixed findings (Gielen & van Ours, 2014; Krause, 2013). Therefore, herein, we explored whether life satisfaction affects the likelihood of reemployment among unemployed individuals. Our expectations are informed by three different perspectives – motivation theories (Carver & Scheier, 1990), positive psychology (Lyubomirsky, King, & Diener, 2005), and the literature on the optimum level of well-being (Oishi, Diener, & Lucas, 2007) – that make different predictions regarding the effect of life satisfaction on reemployment.

Most motivation theories suggest that a discrepancy between a current and a desired state represents a source of motivation and, consequently, behaviors directed at changing existing circumstances (Carver & Scheier, 1990; Higgins, 1987). Low life satisfaction is often seen as a consequence of such discrepancies (Michalos, 1985) and a potential source of behaviors aimed at alleviating them. Indeed, a series of recent studies showed higher levels of life satisfaction to be negatively associated with the desire to change one's life circumstances (Luhmann &

Hennecke, 2017). Consistent with this line of reasoning, the literature on job mobility showed that higher levels of job satisfaction are associated with a lower likelihood of looking for a new job (Green, 2010). Finally, the idea that higher levels of life satisfaction in unemployed individuals might highjack their motivation to change their current circumstances, ultimately leading to a lower likelihood of reemployment has been endorsed in the economic literature as well (Mavridis, 2015). Hence, according to the motivational perspective, higher levels of life satisfaction in unemployed individuals will result in a lower likelihood of reemployment.

In contrast to the motivation theories, the positive psychology perspective (Lyubomirsky, King et al., 2005) predicts that higher levels of life satisfaction will be associated with a higher (rather than lower) likelihood of reemployment. The benefits of happiness and life satisfaction for occupational success have been shown in multiple studies (Roberts, Caspi, & Moffitt, 2003; Staw, Sutton, & Pelled, 1994). Satisfied individuals are more likely to earn higher incomes (Marks & Fleming, 1999), to be evaluated more positively by their supervisors (Staw et al., 1994), to get promoted (Roberts et al., 2003) and are less likely to lose their jobs (Diener, Nickerson, Lucas, & Sandvik, 2002) compared to their less satisfied counterparts. Life satisfaction is associated with larger social networks (Watson, Clark, McIntyre, & Hamaker, 1992; Zhu, Woo, Porter, & Brzezinski, 2013) and higher perceptions of self-efficacy (Creed & Bartrum, 2008) – characteristics that have been shown to play an important role in the process of job search (Barbulescu, 2015; Eden & Aviram, 1993; Gee, Jones, Fariss, Burke, & Fowler, 2017). Satisfied with life individuals are more likely to take a proactive approach to life (Elliot & Thrash, 2002; Watson, Wiese, Vaidya, & Tellegen, 1999), as reflected in proactive job search behaviors and openness toward novel job opportunities. Overall, according to the positive psychology perspective, higher levels of life satisfaction in unemployed individuals will result in a higher (rather than lower) likelihood of reemployment.

Finally, the third perspective that is often referred to as “the optimum level of well-being” can potentially reconcile the different expectations put forward by the motivational and the positive

psychology perspectives (Grant & Schwartz, 2011; Gruber, Mauss, & Tamir, 2011; Oishi et al., 2007). It proposes that life satisfaction will contribute to a higher reemployment likelihood up to a certain point, after which, further increases in life satisfaction will backfire and result in lower (rather than higher) reemployment chances. In other words, "the optimum level of well-being" perspective advocates for a non-linear relationship between life satisfaction and reemployment, suggesting that moderate rather than high or low levels of life satisfaction are expected to result in most positive outcomes.

Indeed, even though multiple studies in positive psychology revealed linear positive associations between life satisfaction and different measures of occupational success (for a review, see Lyubomirsky, King et al., 2005), they rarely explored the possibility of a non-monotonic relationship. At the same time, studies that tested for a non-linear relationship quite often revealed inverted-U-shaped effects, showing that at very high levels, life satisfaction might be associated with less rather than more positive outcomes. For example, while moderate levels of cheerfulness promote healthy behaviors and longevity, extreme cheerfulness is associated with risk-taking behaviors and higher mortality risks (Friedman et al., 1993; Martin et al., 2002). Social perception studies provided support for the benefits of moderate, rather than high levels of happiness showing that extremely happy people are perceived as being naïve and are more likely to be exploited by others (Barasch, Levine, & Schweitzer, 2016). In large-scale longitudinal studies, moderate rather than high levels of life satisfaction were prospectively associated with higher earnings (Oishi et al., 2007). In the work context, moderate rather than high levels of positive affect were shown to promote creative performance (Davis, 2009; Rego, Sousa, Marques, & Cunha, 2012) and moderately rather than extremely happy individuals were shown to be more likely to engage in proactive behaviors at work (Lam, Spreitzer, & Fritz, 2014).

Too much happiness can be costly because it can result in unrealistically high expectations and promote risky choices (Dunning, Heath, & Suls, 2004; Milam, Richardson, Marks, Kemper, &

McCutchan, 2004; Vancouver & Kendall, 2006). Research on unrealistic optimism and overconfidence showed that at moderate levels, optimism and self-efficacy beliefs promote thorough preparation and planning, while at extreme levels, they lead to overestimating one's ability and underestimating the efforts one needs to exert for a successful task completion (Taylor & Brown, 1994). On the job market, this might lead to applying for positions above one's qualification level, insufficient search effort and preparation, and ultimately lower one's reemployment chances. To sum up, according to the optimum level of well-being perspective, life satisfaction will have an inverted-U-shaped effect on reemployment likelihood with moderate rather than high or low levels of life satisfaction being associated with the highest chances of reemployment.

2. Overview of previous empirical findings

Existing studies on the effect of life satisfaction as well as mental health on reemployment have produced mixed findings so far. For example, Clark (2003) and Mavridis (2015) showed that an increase in depressive symptoms following job loss is associated with a shorter unemployment duration. However, in a study of Ginexi and colleagues (2000), the level of depressive symptoms in unemployed individuals did not predict their reemployment success. Two further studies focused specifically on life satisfaction rather than depression. Krause (2013) explored whether life satisfaction in unemployed individuals was associated with increased odds of reemployment within the following year. She found that higher life satisfaction in unemployed men (but not women) predicted a higher likelihood of finding a job. On the contrary, Gielen & van Ours (2014) did not detect any association between a drop in life satisfaction after becoming unemployed and reemployment success, even though their analyses suggested that satisfied, vs. less satisfied, unemployed individuals were more likely to engage in job search behavior. Importantly, none of these studies explored the possibility of an inversed u-shaped association between life satisfaction and reemployment.

In the present paper, we add to this literature by testing the (linear and non-linear) effect of life satisfaction on reemployment success in a large sample of unemployed individuals in Germany. This study extends and contributes to existing literature in a number of ways. First, we examined the effect of life satisfaction on reemployment over a considerably longer time period (10 years) than typically studied before (e.g., one year). This allowed us to study potential long-term effects of life satisfaction and helped reducing the number of censored cases. Second, while previous studies looked at a single reemployment event, we examined multiple labor market re-entries using a multi-level discrete-time event history analysis, which additionally allowed us to account for time-varying confounding variables (e.g., annual changes in household income, childbirth etc.). Finally and most importantly, in contrast to previous studies that only tested a linear association between life satisfaction and reemployment, we proposed and empirically tested the optimum level of well-being perspective by examining whether moderate rather than high or low levels of life satisfaction result in a highest reemployment likelihood.

To rule out potential confounding with basic personality characteristics and other socio-demographic factors, our analyses included a large number of control variables. First, as basic personality traits, such as the Big Five, constitute the strongest predictors of life satisfaction (Lyubomirsky, Sheldon, & Schkade, 2005) and have also been shown to predict reemployment (Kanfer, Wanberg, & Kantrowitz, 2001), we statistically controlled for individual differences in the Big Five in our analyses. We also controlled for individual differences in education, (the lagged value of) work experience, migration background, (lagged) household income and further socio-economic and demographic characteristics associated with reemployment probabilities (Brouwer, Bakker, & Schellekens, 2015; Kanfer et al., 2001; Koen, Klehe, & Van Vianen, 2013; McArdle, Waters, Briscoe, & Hall, 2007; Wanberg, 2012; Wanberg, Hough, & Song, 2002; Wanberg, Kanfer, Hamann, & Zhang, 2016). Finally, we took into account

contextual characteristics, such as region of residence (East vs. West Germany) and the national average unemployment rate in each particular year (Bundesagentur für Arbeit, n.d.).

3. Method

3.1 Participants and data

We used the data of the German Socio-Economic Panel (GSOEP)1, a nationally representative longitudinal study of the German population which has been carried out since 1984 (Wagner, Frick, & Schupp, 2007) and currently samples about 20,000 individuals. The interviews are conducted annually and include detailed information on demographics, socio-economic characteristics, personality and annual measures of life satisfaction. As the Big Five have been assessed in GSOEP for the first time in 2005, our analyses are based on the data from 2005 till 2014. Our sample consisted of individuals officially registered as unemployed with the unemployment office at the time of the interview. Participants remained in the sample until they either became reemployed, dropped out of the labor force (e.g., retired) or dropped out of the study. We discarded cases with missing information about the duration of registered unemployment (left-truncation), resulting in a loss of about 15% of the sample. Because our focus is on reemployment, we further discarded respondents with no prior working experience, thereby discarding unemployed who were looking for their first employment opportunity, leading to a further loss of about 10% of our sample. The final sample consists of 5,363 individuals (M_{age} =44.23, SD_{age} = 12.00, 48.35% male), followed over ten years, and 2,942 reemployment events (see Table 1 for reemployment statistics per year and Table S1 for descriptive statistics). The number of reemployment events per individual ranged between 0 and 4, with 7.51% of individuals having experienced reemployment more than once during our

1 The data can be requested from the German Institute for Economic Research (DIW) and the computer code can be accessed from Rose & Stavrova (2017).

Table 1

Number of unemployed and reemployed cases per year

Year	Unemployed, N	Reemployed, N	Total, N
2005	1,170	325	1,495
2006	1,086	344	1,430
2007	1,009	316	1,325
2008	838	295	1,133
2009	786	234	1,020
2010	792	240	1,032
2011	1,048	225	1,273
2012	1,186	305	1,491
2013	1,122	364	1,486
2014	1,321	294	1,615
Total	10,358	2,942	13,300

Table 2

Reemployment statistics

Number of reemployment events per individual	Reemployed individuals between 2005 and 2014
0	2,899 (54.06%)
1	2,061 (38.43%)
2	337 (6.28%)
3	57 (1.06%)
4	9 (0.17%)
Total	5,363 (100%)

observation period (see Table 2). The median survival time until reemployment was about 2 years.

3.2 Analytic strategy

As life satisfaction data were collected annually, we explored the effect of life satisfaction at any given year (t-1) on the likelihood of reemployment the following year (t0). We used a discrete-time event history analysis, which represents the best approach to examine duration data and account for censoring and time-varying covariates, when time is discrete (e.g., measured in years) (Singer & Willett, 1993). We modelled the variation in the likelihood of reemployment due to time-invariant (e.g., gender, migration background) and time-varying (e.g., life satisfaction the year prior to the potential reemployment event, work experience, income) individuals' characteristics. Analyzing data using a discrete-time hazard model, we can assume a basic logistic function for the dependent variable, *i.e.*, log of the odds of reemployment:

$$\log(p_{ijt}/1 - p_{ijt}) \quad (1)$$

where p_{ijt} represents the probability that reemployment occurs at time *t* during episode *i* for individual *j*. The model can be written as

$$\log(p_{ijt}/1 - p_{ijt}) \; = \; \beta_{0j} + \; \beta_1 X_{ij} + \; \beta_2 Z_{ijt} + \; \beta_3 t \quad (2)$$

where β_{0j} is the constant, β_1 represents the coefficient for a time-constant covariate *X* (not varying across unemployment duration, but across reemployment events), β_2 being a coefficient for time-varying covariate *Z* (varying across unemployment duration as well as reemployment events), and β_3 being a coefficient for time (Teachman, 2011). Time in unemployment begins with the first year of registered unemployment and ends with reemployment or censoring. If an individual re-entered the labor market multiple times during the observation period, the time dummies were reset. Time in unemployment varied between 1 and 19 years (*Mdn.* = 2). An examination of the baseline hazard estimates showed the baseline hazard rate to have a non-

parametric functional form. Therefore, we divided the time variable into discrete units. In each of these units, the hazard rate is assumed to be constant. That is, we modelled time *t* as a piecewise constant function. Based on the functional form of our baseline hazard and the fact that only a very small number of cases stayed unemployed longer than 6 years (n = 373), we included time as yearly dummies indicating one, two, three, four or five years of unemployment, and two dummies indicating 6-10 years and 11-19 years, respectively.

Because the same individuals in our dataset could become unemployed and thus enter "the risk set" for reemployment multiple times during the observed 10 years, we have recurrent events data. Multiple reemployment events experienced by the same individual are not independent of each other as some individuals will be at a higher risk of experiencing repeated reemployment than others. As it is unlikely that the reasons for this higher risk will be fully captured by the covariates, this represents a source of unobserved heterogeneity. As a solution, we extended our discrete-time event history analysis toward a multi-level discrete-time history analysis (Teachman, 2011) by introducing a random effect into the regression equation, taking into account individual-specific unobservables. This resulted in a two-level structure, with the first level of analysis representing annual intervals that are nested (or clustered) within individuals who represent the second level of analysis. Therefore, the Level 2 model can be represented by the following equation:

$$\begin{aligned} \beta_{0j} &= \gamma_{00} + \upsilon_{oj} \\ \beta_1 &= \gamma_1 \\ \beta_2 &= \gamma_2 \\ \beta_3 &= \gamma_{3,} \end{aligned} \tag{3}$$

which can then be combined with the Level 1 model (2) to:

$$\begin{aligned} \log(p_{ijt}/1 - p_{ijt}) &= \gamma_{00} + \gamma_1 X_{ij} + \gamma_2 Z_{ijt} + \gamma_3 t + \upsilon_{oj} \\ \upsilon_{oj} &\sim N(0, \sigma_u^2) \end{aligned} \tag{4}$$

with γ_{00} being the overall intercept term and υ_{oj} as the person-specific random error term with variance and γ_1, γ_2, γ_3 as fixed slopes for the time-constant and time-varying covariates (Teachman, 2011).

We examined the effect of life satisfaction at time t-1 (e.g., 2004) on the likelihood of reemployment at time t0 (e.g., 2005). If reemployment did not occur at time t0 (e.g., 2005), we further examined the effect of life satisfaction at time t0 (e.g., 2005) on reemployment at time t+1 (e.g., 2006), until either reemployment or censoring (in 2014) occurred.

3.3 Measurement

The dependent variable in our analysis is the event of reemployment, that is, a change in the employment status from "unemployed" to "full-time", "part-time" or "marginally employed" (1 = reemployed, 0 = not reemployed).

Life satisfaction was assessed with the question "How satisfied are you with your life overall?". Responses were given on an 11-point scale ranging from 0 = "completely dissatisfied" to 10 = "completely satisfied". This single-item measure of life satisfaction has been shown to strongly correlate with multi-item scales and have high external validity (Cheung & Lucas, 2014).

The Big Five personality traits were measured with the brief (15 items) version of Big Five Inventory (Gerlitz & Schupp, 2005). Responses were given on a 7-point scale ranging from 1 = "does not apply to me at all" to 7 = "applies to me perfectly". Internal consistencies ranged from Cronbach's α = .50 (agreeableness) to Cronbach's α =.66 (extraversion). Such low Cronbach's αs are considered acceptable for this brief instrument as it was developed to capture the maximum bandwidth of the underlying traits (Donnellan & Lucas, 2008; Stavrova, 2015). The Big Five were measured only in 2005, 2009 and 2013. As individuals' Big Five scores have been shown to be temporally stable (Lucas & Donnellan, 2011; Roberts & DelVecchio, 2000) and unaffected by the event of unemployment (Anger, Camehl, & Peter, 2017), they were entered as time-invariant predictors in the analyses (individuals were assigned the Big Five

values they reported at the first measurement occasion, which, for about two third of the overall sample, was in 2005).

We included age, gender (1=male, 0 = female), education ("low": upper secondary education or below; "medium": completed upper secondary or post-secondary, non-tertiary education; "high": completed tertiary education), years of full- and part-time labor market experience (one-year lagged), marital status (1 = married, 0 = not married), presence of children in the household (1 = yes, 0 = no), migration background (1 = yes, 0 = no) and the logarithm of the lagged annual household net income (adjusted for household size with OECD-modified equivalence scale2). We also included the information about the region of residence (former West Germany = 0, former East Germany = 1) and annual national unemployment rate.

4. Results

As shown in Figure 1, respondents' life satisfaction mostly varied between 5 and 8, while in relatively few person-year cases life satisfaction lied below 5 or above 9. Figure 2 plots individuals' life satisfaction against their time-until-reemployment, hinting at a possibility of an inverted u-shaped relationship.

Before proceeding with the survival analyses and testing whether the association between life satisfaction and reemployment indeed has an inverted u-shaped form, we computed the Intraclass Correlation Coefficient (ICC) of the null model (the model without any predictors). This analysis allowed us to see to what extent single reemployment events experienced by the same individual are independent of each other. The Intraclass Correlation Coefficient (ICC) of the null model (the model without any predictors) indicated that about 14.59% of the variation in the likelihood of reemployment stems from differences between individuals, highlighting the

2 This scale adjusts household income according to differences in household size and composition by assigning a value of 1 to the head of household, 0.5 to each additional adult household member, and 0.3 to each child. The total (net) household income is then divided by the number of 'equivalized household members' (OECD, 2013).

importance of accounting for the unobserved heterogeneity among individuals using a multi-level hazard analysis.

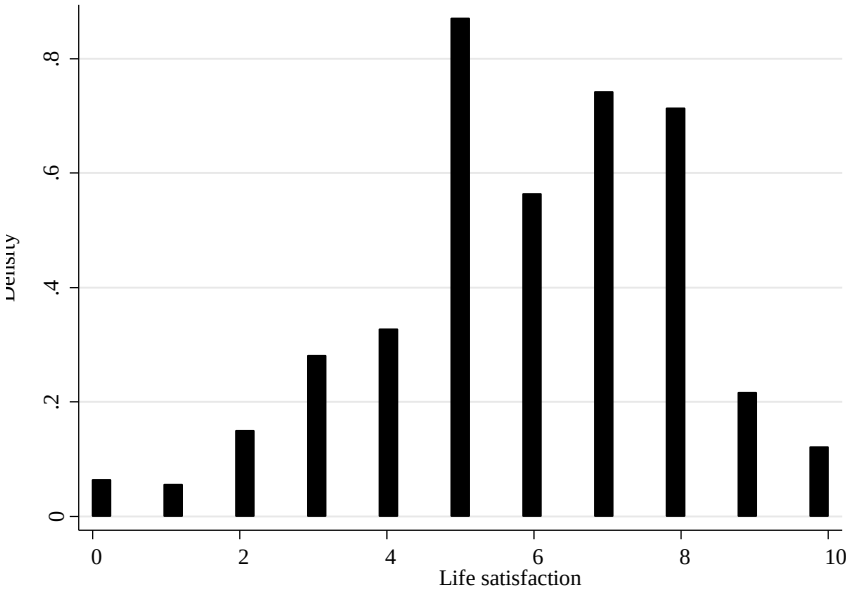

Figure 1

Distribution of life satisfaction scores

N = 5,363

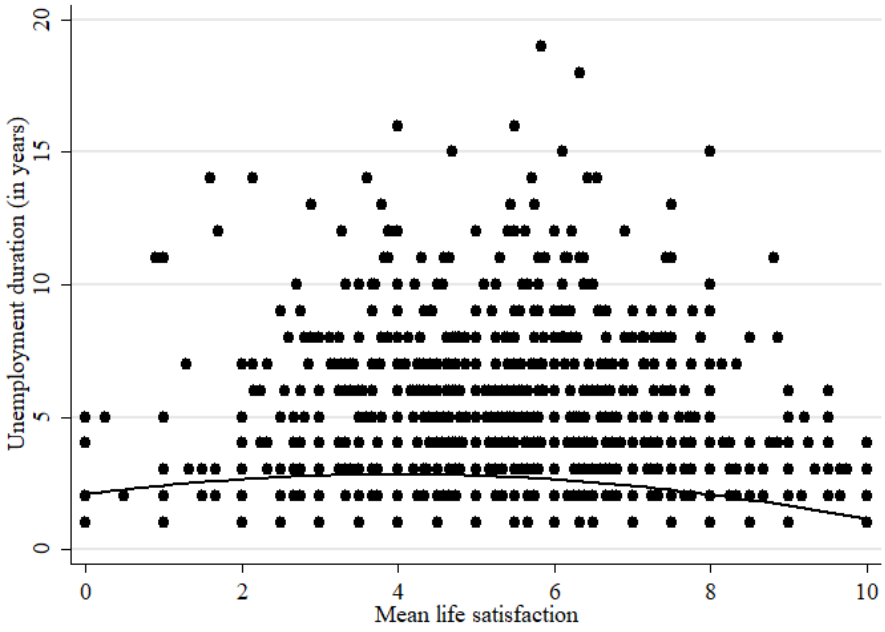

Figure 2

Exploratory scatter plot of unemployment duration for mean life satisfaction (sample without multiple re-entries)

N = 4,960

The results of the multilevel hazard analyses are reported in Table 4. Model 1 shows that life satisfaction is positively associated with the probability of reemployment (OR = 1.03, $p = .048$). That is, a one-unit increase in life satisfaction is associated with a 3% increase in the likelihood of reemployment, providing support to the positive psychology perspective. In Model 2, we included the quadratic term of life satisfaction. The quadratic effect was significant (OR = 0.98, $p < .001$), pointing at a non-monotonic relationship. Plotting the association between life

Table 4

Multi-level discrete-time hazard analysis on individual reemployment

	Model 1		Model 2		Model 3		Model 4	
	OR	*SE*	OR	*SE*	OR	*SE*	OR	*SE*
Life satisfaction	1.03*	(0.01)	1.24***	(0.06)	1.24***	(0.07)	1.26***	(0.08)
Life satisfaction^2			0.98***	(0.00)	0.98***	(0.01)	0.98***	(0.01)
Agreeableness	-		-		0.94	(0.03)	0.96	(0.03)
Neuroticism	-		-		0.89***	(0.02)	0.92**	(0.03)
Extraversion	-		-		0.98	(0.03)	0.97	(0.03)
Openness	-		-		1.16***	(0.03)	1.11***	(0.03)
Conscientiousness	-		-		1.06	(0.04)	1.16***	(0.04)
Male	-		-		-		0.93	(0.07)
Age	-		-		-		0.93***	(0.01)
Education: Medium	-		-		-		2.05***	(0.19)
Education: High	-		-		-		2.88***	(0.35)
Work experience	-		-		-		1.03***	(0.01)
Children	-		-		-		1.01	(0.08)
Income (log)	-		-		-		1.58***	(0.11)
Marital status	-		-		-		1.19*	(0.09)
Migration	-		-		-		0.86	(0.07)
East Germany	-		-		-		0.78***	(0.06)
Unemployment rate	-		-		-		0.89***	(0.02)
N of level 1 units (person-year combinations)	13,124		13,124		10,427		10,075	
N of level 2 units (persons)	5,329		5,329		3,816		3,702	
Goodness-of-fit								
LL	-5,292.999		-5,285.945		-4,443.322		-4,046.261	
AIC	10,604		10,591.89		8,916.643		8,144.521	
BIC	10,671.34		10,666.71		9,025.425		8,332.184	

OR = exponentiated coefficients (odds ratios). Robust standard errors were used. Duration dependence modelled as piecewise constant.

* $p < .05$, ** $p < .01$, *** $p < .001$.

satisfaction and the probability of reemployment showed an inverted-U-shaped functional form (Figure 3). Consistent with the optimum level of well-being literature, moderate levels of life satisfaction were associated with a higher likelihood of reemployment than lower or higher levels.

We used Akaike (AIC) and Bayesian information criterion (BIC) to compare the overall fit of Model 1 (linear) and Model 2 (quadratic). Model 2 yielded lower values in both AIC and BIC than Model 1 and this difference was larger (12 for AIC and 4.6 for BIC) than the cutoff criteria proposed in the literature (Burnham & Anderson, 2003; Raftery, 1995). Therefore, the quadratic model (Model 2) provides a better fit to the data than the linear model (Model 1), giving further support to the optimum level of well-being perspective.

In Model 3, we added the Big Five personality traits. Among them, only the effects of neuroticism and openness reached significance. Neuroticism (OR = 0.89, $p < .001$) was negatively and openness (OR = 1.16, $p < .001$) positively associated with reemployment success. Importantly, the quadratic effect of life satisfaction remained significant (OR_{linear} = 1.24, $p < .001$; $OR_{quadratic}$ = 0.98, $p < .001$), suggesting that the effect of life satisfaction cannot be explained by a potential confounding with basic personality traits.

In Model 4, we added socio-demographic and contextual control variables. The likelihood of reemployment was higher for younger (OR = 0.93, $p < .001$), better educated (OR = 2.88, $p < .001$) respondents from Western German states (OR = 0.78, $p < .001$) with more work experience (OR = 1.03, $p < .001$), married (OR = 1.19, $p = .023$), and with a higher household net income (OR = 1.58, $p < .001$). Higher unemployment rate at any given year was associated with lower reemployment chances (OR = 0.89, $p < .001$). Most importantly, the quadratic effect of life satisfaction remained robust against controlling for these variables (OR_{linear} = 1.26, $p < .001$; $OR_{quadratic}$ = 0.98, $p < .001$).

To put our results into perspective, we calculated the predicted likelihood of reemployment in case of a one-standard-deviation increase and decrease in life satisfaction (relative to the

median). The results indicate that, for an average respondent, a one-standard-deviation increase (versus decrease) in life satisfaction is associated with a reduction in the likelihood of reemployment by about 5 (vs. 0.08) percentage points. While these estimates seem small, they are comparable to the substantive significance of other well-established predictors of reemployment, such as work experience (e.g., in our data, a one-standard-deviation increase in work experience is associated with an 8-percentage-point increase reemployment likelihood).

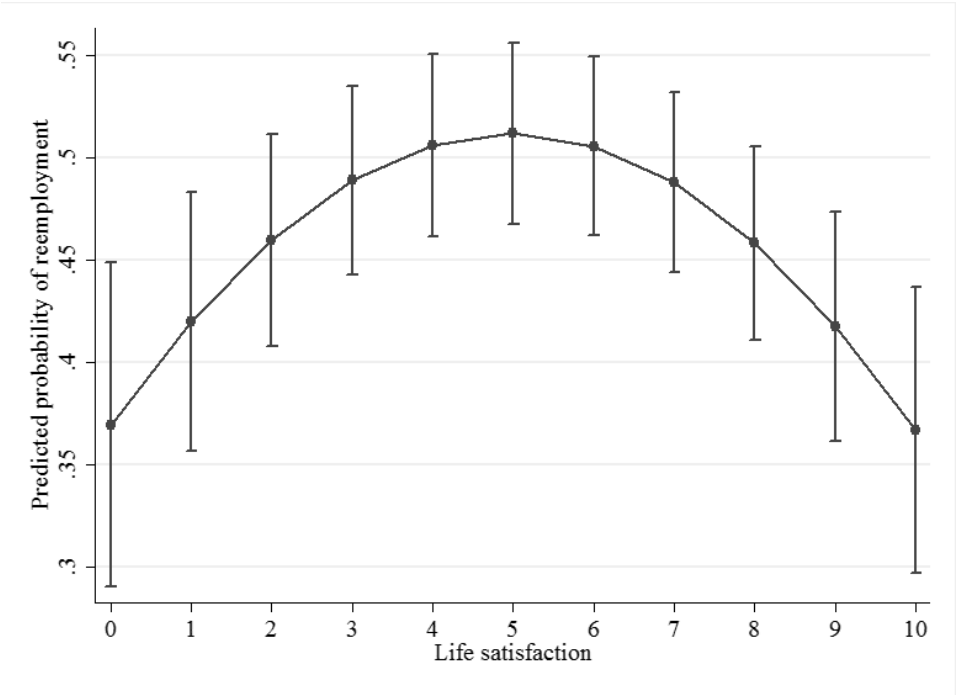

Figure 3

Predicted probability of reemployment

Note: Predicted probability for the following characteristics: male respondent, married, no children, medium education, West German, without migration background, registered unemployment is kept at the median (2), all other covariates kept at their means. 95% - confidence intervals.

As previous studies have shown that men and women experience unemployment differently (van der Meer, 2014) and that the effect of life satisfaction on reemployment might be stronger in men than in women (Krause, 2013), we examined whether the effect of life satisfaction on the likelihood of reemployment is moderated by gender in our sample. The interactions between life satisfaction and gender were insignificant (OR_{linear} = 1.07, p = .561; $OR_{quadratic}$ = 1.00, p =

.876). Nevertheless, we conducted subgroup analyses for male and female respondents (Table S2). These analyses revealed a significant linear and quadratic effects of life satisfaction on reemployment among both male (OR_{linear} = 1.28, p = .003; $OR_{quadratic}$ = 0.98, p = .004) and female respondents (OR_{linear} = 1.23, p = .023; $OR_{quadratic}$ = 0.98, p = .004).

5. Robustness-check

In our main analysis, we used life satisfaction at t-1 to predict reemployment at t0. For some individuals in our risk set, life satisfaction at t-1 happened to be measured while they were still employed3. This could have biased our results, as life satisfaction tends to be higher during employment than unemployment (Clark, Diener, Georgellis, & Lucas, 2008). To make sure that our conclusions are not affected by this aspect of the study's design, we repeated the analyses using only the observations for whom the lagged value of life satisfaction was measured while respondents reported to be in registered unemployment during the interview at t-1 ($N_{persons}$ = 2,923). Our results (OR_{linear} = 1.28, p < .001; $OR_{quadratic}$ = 0.98, p < .001) were robust against this change (Table S3).

Further, the main analyses included the Big Five personality traits as time-invariant predictors. That is, participants were assigned the Big Five values obtained during the first time that the Big Five traits were assessed (for most participants, it was in 2005). As the Big Five were also measured in 2009 and 2013, in an additional set of analysis we included them as time-varying predictors. That is, we still used the first available value per respondent, but the value changed once the respondent answered the questionnaire again. The analyses with the Big Five as time-varying predictors did not yield any different results (Table S4).

3 These individuals became unemployed at some point between t-1 and t0.

Next, we tested whether our conclusions depend on the inclusion of multiple re-entries into employment. Removing the respondents who reported multiple re-entries (7.5%, Table S5) did not substantially change our results in comparison to the original model (OR_{linear} = 1.30, p < .001; $OR_{quadratic}$ = 0.97, p < .001).

Finally, we tested whether our results depend on the regional social norm to work. Existing literature (Clark, 2003; Stutzer & Lalive, 2004) has shown that both, life satisfaction of unemployed individuals and time until reemployment depend on the contextual social norm to work (operationalized as regional unemployment rate; the higher the unemployment rate, the more common it is to be unemployed, the weaker is the social norm to work). Therefore, in an additional set of analyses we explored whether the effect of life satisfaction on reemployment chances depends on regional unemployment rate. We estimated both the main effect of regional unemployment rate and its interaction with unemployed individuals' life satisfaction (Table S6). While the main effect of the regional unemployment rate was significant (suggesting that lower unemployment rate was associated with an increased reemployment probability), we found no significant interaction effect. Most importantly, the linear and quadratic effect of life satisfaction remained robust against controlling for the regional unemployment rate (OR_{linear} = 1.27, p < .001; $OR_{quadratic}$ = 0.94, p < .001). These results suggest that the impact of life satisfaction on reemployment does not depend on the regional unemployment rate and thereby the social norm to work.

6. Discussion

Life satisfaction has long been considered an important factor contributing to positive life outcomes across different domains, including occupational success (Lyubomirsky, King et al., 2005). Life satisfaction has been shown to contribute to a higher income (Marks & Fleming, 1999), positive supervisor evaluations (Staw et al., 1994) and an increased likelihood of promotion (Roberts et al., 2003). Given these findings, one could expect higher levels of life

satisfaction to be associated with an increased likelihood of reemployment among unemployed individuals as well. At the same time, research in motivation science hints at a possibility of a negative (rather than positive) association between life satisfaction and reemployment likelihood (Carver & Scheier, 1990). Higher life satisfaction might undermine individuals' motivation to change existing circumstances, e.g., via finding a new employment (cf. Luhmann & Hennecke, 2017). Similarly, economists have traditionally seen happiness and life satisfaction as measures of "utility" in the context of cost-benefit analysis (Frey & Stutzer, 2005). Using this terminology, lower (rather than higher) life satisfaction among the unemployed is considered "disutility" and is assumed to speed up the process of alleviating this unpleasant state, that is, getting a job (e.g., Gielen & van Ours, 2014). Finally, as proposed in an emerging stream of research on the optimum level of well-being (Diener, Gohm, Suh, & Oishi, 2000; Grant & Schwartz, 2011), the effect of life satisfaction on reemployment might be non-monotonic, with chances of reemployment being highest at moderate rather than low or high levels of life satisfaction.

In the present research, we explored these three possibilities using the data from 5,363 individuals followed over 10 years. Our results demonstrated an inverted-U-shaped relationship between life satisfaction and reemployment, providing support to the optimum level of well-being hypothesis. The quadratic effect of life satisfaction was robust against controlling for the Big Five personality traits, education and labor market experience, as well as a host of other socio-demographic and macro-level characteristics. These findings are particularly important, given that the existing empirical research on the role of life satisfaction in reemployment (Gielen & van Ours, 2014; Krause, 2013) has been relatively scarce, produced mixed findings and has never considered a possibility of an optimum level of life satisfaction for reemployment success.

More generally, our finding of an inverted-U-shaped effect contributes to a small but rapidly growing literature on beneficial effects of a moderate, rather than too high or too low level of

well-being (Grant & Schwartz, 2011; Oishi et al., 2007). Why are moderate levels of life satisfaction so beneficial? We speculate that a moderate level of life satisfaction allows for two important factors that contribute to reemployment: a strong enough motivation to change one's circumstances and a sense of self-efficacy needed to achieve this goal (cf. Norem & Chang, 2002; Oishi et al., 2007). Prior research has found a moderate level of life satisfaction to promote proactive work behaviors (Lam et al., 2014) and creativity (Davis, 2008). In a similar vein, moderately satisfied unemployed individuals might be more likely to engage in proactive job search activities and be more open towards alternative career options.

Even though the present study is based on a large sample and state-of-the-art statistical methods, it is not without limitations. We consider the discrete time scale the most important limitation, mainly as it does not represent the most natural time scale to register changes in employment status. Yet, we had to measure time in annual intervals, as GSOEP included only annual assessments of life satisfaction and there are currently no surveys known to us that would measure life satisfaction monthly or at least bi-annually. We hope that this problem will be overcome in future studies allowing researchers to follow changes in life satisfaction and reemployment success on a much narrower time scale (e.g., monthly).

In addition, it should be noted that our results are restricted to the context of the German labor market and social security system. While we could account for some aspects of the labor market context by controlling for regional unemployment rates, existing data does not allow us to explore whether the optimum level of well-being effect depends on the particularities of the German social security system. One such particularity is the workfare approach which makes unemployment benefits contingent upon job search effort. Previous research has shown unemployed individuals' life satisfaction to be positively associated with activating labor market policies and generous unemployment benefits (Wulfgramm, 2011). Therefore, it appears worthwhile to explore whether these and other aspects of the institutional context might shape the association between life satisfaction and reemployment as well.

Our findings are particularly interesting in light of the approach to life satisfaction and unemployment commonly adopted in economics, where low life satisfaction during unemployment is seen as a "disutility" and is believed to drive more job search effort (Frey & Stutzer, 2005). Our results show that low life satisfaction among unemployed individuals is not associated with faster reemployment. At the same time, being at the opposite, upper spectrum of life satisfaction, is not associated with a higher probability of reemployment either. Instead, moderate levels of life satisfaction seem to represent an optimum, being associated with the highest probability of reemployment.

Unemployed individuals face a range of barriers to work, such as a lack of human capital and depleted networks. Our results suggest that both a too low and a too high level of life satisfaction might represent such a barrier as well. Overcoming these obstacles into reemployment is of high societal and political importance, as high unemployment rates increase the costs of social welfare systems and decrease economic productivity (Sinfield, 2015). Our results hint at the possibility that increasing the level of life satisfaction among the unemployed is only beneficial up to a certain threshold and that 'too much happiness' might be counterproductive and result in lower reemployment success compared to moderate happiness levels. While we cannot rule out reverse causality and strongly encourage future research to establish whether our findings can be reproduced with a causal claim, we want to carefully suggest the practical implications of our results. Several government programs and interventions have been launched in recent years aimed at improving the psychological health of unemployed individuals (Lonitz, 2017; e.g., "MehrWert 50plus" program (Universitaetsklinikum Leipzig, 2015)). Our findings hint at a possibility that such programs might be particularly beneficial if they specifically target unemployed individuals who are highly dissatisfied with life and possibly on the verge of depression. In contrast, programs attempting to boost the life satisfaction of the unemployed in a blanket manner could potentially be fruitless and might even backfire. We hope that future research will explore this and potential other practical implications of the present findings.

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8. Supplementary materials

Table S1

Descriptive statistics

	Minimum	Maximum	Mean	SD	Median
Life satisfaction	0	10	5.92007	2.108017	6
Unemployment duration (months)	1	19	2.384211	1.970965	2
Sex (1= male)	0	1	.4834993	.4997482	0
Age	18	91	44.23379	11.99637	45
Education: Low	0	1	.214992	.4108325	0
Education: Medium	0	1	.6266575	.4837105	1
Education: High	0	1	.1583506	.3650834	0
Agreeableness	1	7	5.410958	1.018146	5.333333
Neuroticism	1	7	4.165524	1.211389	4.333333
Extraversion	1	7	4.838221	1.168884	5
Openness	1	7	4.412339	1.200695	4.333333
Conscientiousness	1	7	5.889579	.9576106	6
Work experience (lagged)	.1	50.1	15.15327	11.55234	13.2
Household income (log, lagged)	3.988984	12.32998	9.405575	.5265064	9.37644
Children (1 = yes)	0	1	.4518045	.4976905	0
Marital status (1 = married/cohabiting)	0	1	.4829265	.4997274	0
Migration background (1= yes)	0	1	.2689328	.4434216	0
Region (1 = East Germany)	0	1	.3904511	.4878698	0
Unemployment rate	6.7	11.7	8.282504	1.729841	7.7

Table S2

Multi-level discrete-time hazard analysis separate for gender

	Female		Male	
	OR	*SE*	OR	*SE*
Life satisfaction	1.23*	(0.11)	1.28**	(0.11)
Life satisfaction^2	0.98**	(0.01)	0.98**	(0.01)
Age	0.94***	(0.01)	0.90***	(0.01)
Education: Medium	1.90***	(0.25)	2.38***	(0.31)
Education: High	2.69***	(0.45)	3.57***	(0.62)
Agreeableness	0.91	(0.05)	1.02	(0.05)
Neuroticism	0.92*	(0.04)	0.93	(0.04)
Extraversion	0.96	(0.04)	0.99	(0.04)
Openness	1.11*	(0.05)	1.11*	(0.05)
Conscientiousness	1.17**	(0.07)	1.13*	(0.06)
Work experience	1.02*	(0.01)	1.04***	(0.01)
Household income(log)	1.75***	(0.18)	1.47***	(0.14)
Children	0.90	(0.10)	1.13	(0.12)
Marital status	0.97	(0.10)	1.49***	(0.17)
Migration background	0.85	(0.11)	0.87	(0.10)
East Germany	0.67***	(0.07)	0.92	(0.09)
Unemployment rate	0.88***	(0.02)	0.89***	(0.02)
N of level 1 units (person-year combinations)	5,064		5,011	
N of level 2 units (persons)	1,878		1,824	
Goodness-of-fit				
LL	-2048.186		-1973.268	
AIC	446.372		3996.535	
BIC	4309.62		4159.52	

OR = exponentiated coefficients (odds ratios). Robust standard errors were used. Duration dependence modelled as piecewise constant.

* $p < .05$, ** $p < .01$, *** $p < .001$.

Table S3

Multi-level discrete-time hazard analysis on individual reemployment (with life satisfaction measured during unemployment)

	OR	*SE*
Life satisfaction	1.28***	(0.08)
Life satisfaction^2	0.98***	(0.01)
Agreeableness	0.96	(0.03)
Neuroticism	0.92*	(0.03)
Extraversion	0.97	(0.03)
Openness	1.12**	(0.04)
Conscientiousness	1.16***	(0.05)
Male	0.93	(0.07)
Age	0.92***	(0.01)
Education: Medium	2.14***	(0.22)
Education: High	3.05***	(0.40)
Work experience	1.03***	(0.01)
Children	0.96	(0.08)
Income (log)	1.73***	(0.13)
Marital status	1.24*	(0.10)
Migration	0.86	(0.08)
East Germany	0.74***	(0.06)
Unemployment rate	0.88***	(0.02)
N of level 1 units (person-year combinations)	6,455	
N of level 2 units (persons)	2,923	
Goodness-of-fit		
LL	-3,684.175	
AIC	7,418.351	
BIC	7,587.666	

OR = exponentiated coefficients (odds ratios). Robust standard errors were used. Duration dependence modelled as piecewise constant.

* $p < .05$, ** $p < .01$, *** $p < .001$.

Table S4

Multi-level discrete-time hazard analysis on individual reemployment (with time-variant personality traits)

	OR	*SE*
Life satisfaction	1.26***	(0.07)
Life satisfaction^2	0.98***	(0.01)
Male	0.91	(0.06)
Age	0.93***	(0.01)
Education: Medium	2.08***	(0.19)
Education: High	2.97***	(0.36)
Agreeableness	0.97	(0.03)
Neuroticism	0.90***	(0.02)
Extraversion	0.99	(0.03)
Openness	1.05	(0.03)
Conscientiousness	1.15***	(0.04)
Work experience	1.03***	(0.01)
Household income(log)	1.60***	(0.11)
Children	1.01	(0.08)
Marital status	1.17*	(0.09)
Migration background	0.86	(0.07)
East Germany	0.76***	(0.06)
Unemployment rate	0.89***	(0.02)
N of level 1 units (person-year combinations)	10,075	
N of level 2 units (persons)	3,702	
Goodness-of-fit		
LL	-4048.88	
AIC	8149.761	
BIC	8337.424	

OR = exponentiated coefficients (odds ratios). Robust standard errors were used. Duration dependence modelled as piecewise constant.

* $p < .05$, ** $p < .01$, *** $p < .001$.

Table S5

Discrete-time hazard analysis on individual reemployment (without multiple re-entries into employment)

	OR	*SE*
Life satisfaction	1.30***	(0.09)
Life satisfaction^2	0.97***	(0.01)
Male	0.93	(0.07)
Age	0.91***	(0.01)
Education: Medium	2.01***	(0.19)
Education: High	2.82***	(0.34)
Agreeableness	0.95	(0.03)
Neuroticism	0.93*	(0.03)
Extraversion	0.96	(0.03)
Openness	1.10**	(0.03)
Conscientiousness	1.16***	(0.05)
Work experience	1.04***	(0.01)
Household income(log)	1.74***	(0.13)
Children	1.01	(0.08)
Marital status	1.36***	(0.11)
Migration background	0.86	(0.07)
East Germany	0.69***	(0.05)
Unemployment rate	0.95**	(0.02)
N	8,066	
Goodness-of-fit		
LL	-2708.746	
AIC	5467.492	
BIC	5642.377	

OR = exponentiated coefficients (odds ratios). Robust standard errors were used. Duration dependence modelled as piecewise constant.

* $p < .05$, ** $p < .01$, *** $p < .001$.

Table S6

Discrete-time hazard analysis on individual reemployment (with regional unemployment rate and interaction effect)

	Model 1		Modell 2	
	OR	*SE*	OR	*SE*
Life satisfaction	1.27***	(0.08)	1.56**	(0.24)
Reg. unemployment rate	0.94***	(0.01)	0.97	(0.03)
Life satisfaction^2	0.98***	(0.01)	0.96**	(0.01)
Life satisfaction x reg. unemployment rate			0.98	(0.01)
Life satisfaction^2 x reg. unemployment rate			1.00	(0.00)
Male	0.93	(0.06)	0.93	(0.06)
Age	0.93***	(0.01)	0.93***	(0.01)
Education: Medium	2.02***	(0.19)	2.03***	(0.19)
Education: High	2.88***	(0.35)	2.89***	(0.35)
Agreeableness	0.96	(0.03)	0.96	(0.03)
Neuroticism	0.92**	(0.03)	0.92**	(0.03)
Extraversion	0.97	(0.03)	0.97	(0.03)
Openness	1.12***	(0.03)	1.12***	(0.03)
Conscientiousness	1.15***	(0.04)	1.15***	(0.04)
Work experience	1.02***	(0.01)	1.02***	(0.01)
Household income(log)	1.55***	(0.11)	1.55***	(0.11)
Children	1.01	(0.08)	1.01	(0.08)
Marital status	1.16*	(0.09)	1.16*	(0.09)
Migration background	0.85	(0.07)	0.85	(0.07)
East Germany	1.13	(0.10)	1.12	(0.11)
N of level 1 units (person-year combinations)		10,075		10,075
N of level 2 units (persons)		3,702		3,702
Goodness-of-fit				
LL		-2,499.678		-4,047.114
AIC		5,051.355		8,146.229
BIC		5,226.079		8,333.892

OR = exponentiated coefficients (odds ratios). Robust standard errors were used. Duration dependence modelled as piecewise constant.

* $p < .05$, ** $p < .01$, *** $p < .001$.

Study 3

The skill-divide in post-unemployment job quality

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Abstract

With increasing demand of high-skilled labor and the educational expansion in many OECD countries, low-skilled workers are increasingly forced into low-skilled, low-paid and insecure jobs. Scholars have pointed to a strong skill-divide in job quality. We examined whether unemployment promoted the skill divide in job quality with a variety of post-unemployment job-quality indicators. Using a large German panel survey, we found that low-skilled respondents were less prone to decreased post-unemployment job quality. Further analyses revealed that this finding can be attributed to a considerable post-unemployment downward mobility of the high-skilled respondents, while for low-skilled respondents a 'floor-effect' was apparent.

1. Introduction

Due to a decline in the manufacturing sector and a rise in knowledge-based technology, many OECD countries have experienced a structural demand shift in their labor markets in recent decades, leading to an increasing demand for high-skilled labor (Burtless, 1995; Howell, 2002; Stier, 2015). Thus, low-skilled workers encounter cumulative difficulties in finding both employment and good working conditions (Solga, 2002; Van der Ende, Walsh, & Ziminiene, 2014), resulting in higher levels of wage inequality (Diprete, 2005) and a skill divide in job quality (Gesthuizen, Solga, & Künster, 2010; Solga, 2002; Stier, 2015).

Given the empirical evidence on the detrimental consequences of unemployment for job quality (Brand, 2006; Dieckhoff, 2011), the question arises as to whether unemployment fosters this form of labor market inequality by enhancing the discrepancies in job quality for low- and high-skilled workers. Theoretically, we recourse to multiple economic and sociological perspectives, arguing that low-skilled unemployed face greater difficulties in finding good quality reemployment.

Research on labor market inequality so far has mainly focused on earnings and occupational positions as stratifying indicators (cf. Card, 1999; Kalleberg, Reskin, & Hudson, 2000; Mayer & Carroll, 1987). The marked focus on either of these indicators is a severe drawback, and recently scholars have pointed out the importance of examining quality of employment in a more broadly sense (Baumann, 2016; Clark, 2005). Studies analyzing the impact of skills on post-unemployment job quality have so far mainly concentrated on involuntary job loss (i.e., displacement) and find either that higher education is related to lower losses in post-unemployment earnings (Appelqvist, 2007; Kriechel & Pfann, 2005) or that education has no impact on post-unemployment earnings (Baumann, 2016). With regard to the non-pecuniary consequences of job loss on reemployment job quality, research indicates that the higher educated are more likely to find full-time reemployment, indicating greater job

security (Baumann, 2016; Farber, 2004); but also they are over-qualified and enjoy less job authority (Baumann, 2016). Research to date has been inconclusive. Therefore, we consider various indicators of job quality, examining it as a multi-dimensional concept with important non-pecuniary aspects, for example, skill-match, work hour flexibility, career development, and job security.

Secondly, we examine the impact of both voluntary and involuntary unemployment on post-unemployment job quality. All studies so far have focused on displacement as the mechanism for unemployment. Arguably, displacement is a suitable way to overcome the problem of selection often present in job loss research, but plant closures are still subject to selectivity bias as qualified and adaptive workers may leave the workforce prior to closure (Brand, 2015). It is therefore necessary and of interest to enlarge the study and examine voluntary as well as involuntary labor market exit, focusing on both those who have been displaced and those who quit their job and are now searching for new employment.

Job quality is a central aspect of labor market inequality. Finding a suitable job has been shown to have crucial long-term consequences for job satisfaction and on-the-job search (Allen & van der Velden, 2001; Johnson & Johnson, 2000), mental and general health (Henseke, 2017), as well as productivity (Arends, Prinz, & Abma, 2017). Understanding the impact of differences in skill levels on post-unemployment job quality should be of great importance for the current sociological debate on the consequences of unemployment. With little or no conclusive evidence, our paper extends prior research on the skill divide in job quality by asking whether unemployment fosters labor market inequality by enhancing the discrepancies in job quality in low-, medium-, and high-skilled workers. Specifically, using large-scale panel data from Germany, namely the German Socio-Economic Panel (GSOEP) study, we examined the potential effect of individual differences in education on post-unemployment job quality.

1.1 Skill level and post-unemployment job quality

With its concentrated focus on vocational training and the dual-apprenticeship system, Germany is known to emphasize vocational, hence also skill-based, education. Concentrating on specific vocational skills, the entry of workers into the labor market is assumed to be more productive in Germany. However, given the rapid changes in the German labor market due to the technological shift, specific vocational skills are prone to speedier obsolescence than is general education.

Education has proven to be among the main assets of workers in gaining a competitive advantage on the job market (Gangl, 2000)—higher education being related to higher earnings (Card, 1999; Fasih, 2008) and better health (Edgerton, Roberts, & von Below, 2012), and ultimately driving other factors related to labor market outcomes such as work experience, networks, and contacts, or geographical mobility (Gangl, 2000). Scholars and policy makers are therefore concerned with the vulnerability of low-skilled people, who show higher risks of unemployment; and even if they do find jobs these turn out to be low-skilled, low-status, low-paid, and insecure (Nickell & Bell, 1995; Solga, 2008).

Still, little research so far has been conducted on how this form of labor market inequality is influenced by the disruptive event of unemployment, despite vast research on the long-term consequences of unemployment, so-called ‘unemployment scarring’. This relates to the detrimental impact of unemployment on outcomes that are tangible—for example income, and psychosocial—for example life satisfaction, even when the unemployed re-enter the labor market. Human capital theory (Becker, 1964) has been among the central explanations for unemployment scarring, suggesting that the skills of the unemployed may be of less use in their new job than they were in their old job, thus forcing them to accept any job offer even if its requirements are below their qualifications and labor market experience. Consequently, human

capital theory suggests that skills are of major importance for the degree of 'scarring' the unemployed face with regard to their post-unemployment jobs.

Our hypothesis in respect of job quality highlights the importance of differences in individual skill level, positing that more highly skilled unemployed people will be less inclined than low-skilled to decreasing post-unemployment job quality. Essentially we argue that to find high post-unemployment job quality, unemployed people need to encounter a variety of different potential employment opportunities. Due to recent changes, in particular educational expansion and technological change, low-skilled unemployed do not so much face a 'lack of absolute skills', as Solga (2008) points out, but a 'lack of opportunity', which leaves them with limited choices for potential reemployment opportunities, thereby lowering their likelihood of finding a job of high quality.

We derive our hypothesis from three theoretical economic and sociological perspectives: transferability of skills (Becker, 1964; Korpi, de Graaf, Hendrickx, & Layte, 2003), displacement-theory (Blossfeld, 1985; Boudon, 1974), and 'selection by negative stigmatization' (Solga, 2002). The educational system provides skills which can be differentiated into general and specific (Becker, 1964). General skills, such as reading and writing, but also analytical thinking and problem solving, are highly transferable among diverse occupations, while specific—or vocational—skills are highly relevant in a specific context, such as a particular sector or occupation. Vocational skills are therefore only an advantage if the individual finds post-unemployment jobs in the same occupation or sector, while their skills are a disadvantage in the competition for jobs outside of their particular context, mostly owing to potential costs of the necessary additional training (Heijke, Meng, & Ris, 2003; Korpi et al., 2003). This limitation will restrain low-skilled applicants in their search for new jobs as they will have to limit it to occupations where they can apply their job- or firm-specific training, while unemployed with generic skills will benefit from highly-transferable skills. Furthermore,

the highly skilled will benefit from what Korpi et al. (2003) call 'trainability': the 'ease with which an individual is able to learn new skills'. Trainability, signaled by educational degree, is then interpreted as reducing additional training costs upon future employers, ultimately enhancing the likelihood of job offers for high-skilled unemployed. Of course, the acquisition of skills does not end with a high-school or university degree but continues throughout the person's employment (and potentially unemployment) trajectory, for example, through on-the-job training or welfare schemes. Equally, potential employers will interpret these kinds of training as signifying productivity and specific skill sets.

As a result of the technological change and the enlargement of the service sector, high skills are not only more in demand (Solga, 2002): scholars have also repeatedly pointed to the so-called displacement argument, namely that in times of high job competition, high-skilled workers out-qualify low-skilled persons (cf. Blossfeld, 1985; Boudon, 1974). With increasing oversupply of highly skilled persons owing to educational expansion, and persistent job shortage in many countries, scholars isolate an out-crowding effect with the highly skilled displacing the low skilled, ultimately forcing low-skilled applicants into jobs of poorer quality (Heijke et al., 2003; Solga, 2008).

Lastly, also owing to educational expansion, the number of less educated people, hence their group composition, has changed, resulting in what Solga (2002) calls 'stigmatization by negative selection'. This adds a sociological and behavioral explanation as to why the low-skilled face limited good quality post-unemployment job opportunities. The educational expansion has resulted in a low-skilled person being in a minority and '"deviating" from *the* educational norm' (Solga, 2002, emphasis in original). Further, those who remain low-skilled, are often a 'negative selection' in their social background, ability, and career aspirations. Overall, employers aim to hire applicants whom they believe are able to master the job, and take low education as a signal of low productivity and capacity. Therefore they adapt the jobs

they offer to the low skills of those persons, rather than offering them low-skilled jobs (Solga, 2002).

Taken together, various streams of research suggest that low-skilled unemployed people face limited employment opportunities and will be more likely to be willing to accept jobs below their requirements in order to return to the labor market.

1.2 Blue- and white-collar differences

Vast research has shown that workers in white- and blue-collar occupations face different environments, tasks, demands, and job quality (Fagan & Burchell, 2002). Stereotypically, white-collar occupations are described as being mainly concerned with data, that is, numbers, words, information, or knowledge, thereby differing from blue-collar occupations which are mostly of a physical nature (Schreurs, Van Emmerik, De Cuyper, Notelaers, & De Witte, 2011). White-collar jobs are generally more challenging (Pelfrene et al., 2001) and usually provide more on-the-job training (Almeida-Santos, Chzhen, & Mumford, 2010). Earlier research maintains that white-collar jobs provide higher job quality than blue-collar jobs (Glass, 1990; Näswall & De Witte, 2003). We extend this previous research by positing that white- and blue-collar occupations might function as a sort of 'baseline' for job quality, educational differences being stronger in blue-collar than in white-collar occupations.

2. Method

2.1 Participants and data

We used the data of the GSOEP, a nationally representative longitudinal study of the German population ongoing since 1984, and currently sampling about 20,000 individuals (Wagner, Frick, & Schupp, 2007). The interviews are conducted annually and include detailed information on demographics and respondents' socio-economic characteristics. We focus on

the period 1986 to 2007, where the GSOEP included several subjective indicators of job quality. Our sample covered only respondents who had just become reemployed, namely they were in registered unemployment for at least one month prior to the interview and were in full- or part-time employment at the time of the interview. The final sample was 4,221 individuals (M_{age} = 35.53, SD_{age} = 10.61, 55.74% male) and 5,608 reemployments. The number of reemployments per individual ranged from 1 to 6, with 24.59% of individuals having experienced reemployment more than once during our observation period (Table 1). Average duration of unemployment was about 8.93 months (SD = 11.07).

Table 1

Frequencies of reemployed individuals per number of reemployments

Number of reemployments per individual	Reemployed individuals
1	3,183 (75.41%)
2	772 (18.29%)
3	199 (4.71%)
4	53 (1.26%)
5	12 (0.28%)
6	2 (0.05%)
Total	4,221 (100%)

2.2 Analytic strategy

We explored the effect of skill level on post-unemployment job quality. As multiple reemployments experienced by the same individual are not independent of each other and represent a source of unobserved heterogeneity (unobserved individual-specific factors that affect job quality across all reemployments of the same individual), we take this into account by using a multi-level *linear probability model* (LPM: Wooldridge (2009)). At the first level of analysis are the single reemployments nested within individuals representing the second level of analysis. This allows modelling the variation in the likelihood of decreased post-unemployment job quality due to individuals' time-invariant characteristics (e.g., gender, migration background) and time-varying characteristics (e.g., skills, age, unemployment duration).

2.3 Measurement

We examined several indicators of job quality, thereby capturing the different dimensions of job quality. To this end we measured subjective job quality, thereby benefiting from the many dimensions of job quality we can measure, but also considering that workers are heterogeneous in their preferences for different working conditions (Green, 2013), for example, workers might favor of an increase in working hours, which objectively could be interpreted as a decrease in job quality. Respondents were asked to compare their current job quality with that of their former job with regard to (a) the type of work, (b) income, (c) chances of promotion, (d) work load, (e) commute, (f) work hour regulations, (g) employee benefits, (h) security against job loss, (i) use of professional skills and abilities. Overall, we thereby measure both the pecuniary (b,g) and non-pecuniary (a,c,d,e,f,h,i) dimensions of job quality. Our dependent variable is binary with 1—has current job quality decreased compared with the previous job, and 0—has

current job quality improved or stayed the same compared with the former job as regards each of these job characteristics.

We measured skill-level through the respondent's reported educational level, dividing it into lower, medium and higher education.[4] This procedure is commonly adapted to the measurement of skills (Solga, 2008; Stier, 2015), which are rarely measured directly in surveys.[5] For a clearer understanding of the impact of skill level in different occupational environments, we further examined two different subgroups, namely respondents who found jobs commonly classed as blue- and white-collar respectively. We derive the occupational classification of the current job,[6] namely post-unemployment, using the ISCO-88 classification scheme.[7] While blue-collar jobs are commonly associated with lower-skilled respondents, and white-collar jobs with higher-skilled, Table 2 indicates that our sample includes numerous cases in which highly educated respondents are found in blue-collar occupations, and lower educated respondents in white-collar occupations. The chi-square test-of-independence indicates that education and occupation are related, albeit only moderately ($\chi^2(6, N=5{,}608) = 0.00$, $p<.001$; Cramer's $V = 0.33$). We therefore feel confident to examine a combination of the two measures in our subgroup-analyses. Both skill-level and occupation are time-variant, that is, changes in

[4] The three categories of education are derived from the International Standard Classification of Education (ISCED) 1997. The category 'low' represents upper secondary education or below, 'medium' includes completed upper secondary or post-secondary, non-tertiary education, and 'high' relates to completed tertiary education.
[5] Unfortunately, we could not include additional training as a further variable without a steep decrease in sample size therefore a heavy loss in explanatory power of our analysis. Including a variable indicating participation in further vocational training during the last year or during the last three years yielded no change in the impact of education on post-unemployment job quality; the coefficient itself was insignificant in its effect on all job quality indicators (results not shown).
[6] It would be useful to also examine the occupational category of the last job. However, because the occupational category is only assessed during the annual interviews, we only have information on the last job of the respondents that occurred during the time of the interview, i.e., employment between interviews is not captured. Because we do not consider this a reliable way to measure the occupational category of the respondent's last job, we did not include it in our analysis.
[7] The occupational classification is derived from the International Standard Classification of Occupations (ISCO-88), with white-collar including the categories ISCO 1-5 and blue-collar including the categories ISCO 6-9. Armed forces are excluded.

respondent's educational level or occupational category throughout the observation period are captured in our analyses.

Table 2

Number of respondents in occupational category by formal skills

	White-collar	%	Blue-collar	%	N	%
Low skills	308	33.05	624	66.95	932	100.00
Intermediate skills	1,686	48.64	1,780	51.36	3,466	100.00
High skills	996	82.31	214	17.69	1,210	100.00
N	2,990	53.32	2,618	46.68	5,608	100.00

To control for potential confounders, we include a variety of time-variant measures. These are first, duration of last unemployment spell (in months), since studies have shown that job quality declines with increasing unemployment duration (Baumann, 2016; Pollmann-Schult & Buchel, 2005). Further, we include variables on labor market attachment and a host of socio-demographic characteristics, including age, lagged value of years of previous (full- and part-time) labor market experience, respondent is married (1 = yes, 0 = no), children in the household (1 = yes, 0 = no), region of residence (former West Germany = 0, former East Germany = 1) and year of reemployment. For time-invariant predictors, we include gender (1=male, 0 = female) as well as migration background (1 = yes, 0 = no).

3. Results

Starting with an overview of our sample, Table 3 presents the percentage of reemployments in which respondents report decreased job quality in each skill category. Surprisingly, apart from 'type of work' and 'skill-use', the highest number of respondents reporting decreased job quality are found in the high-skilled group. We cannot, however, be sure that this is due to their educational trajectory, therefore we proceed with the LPM.

Table 3

Percentage of reemployments with decreased post-unemployment job quality by formal skills

	Type of work	Income	Promotion	Work load	Commute	Work hour regulations	Benefits	Job security	Skill-use
Low skills	15.92	26.77	19.14	26.71	30.54	20.84	14.67	15.83	25.15
Intermediate skills	16.12	29.60	20.86	26.79	31.40	22.16	19.56	19.46	27.53
High skills	14.63	34.51	23.95	30.40	33.81	23.40	24.83	24.72	22.33
N	5,618	5,610	5,512	5,596	5,613	5,595	5,528	5,539	5,889

Note: The numbers represent the percent of reemployments in the corresponding skill category, i.e., 15.92 means that about 16% of the low-skilled respondents report decreased job quality regarding the type of work.

Given the nested structure of our data, we first computed the Intraclass Correlation Coefficient (ICC) of the null model (the model without predictors) to see the extent the decreases in post-unemployment job quality experienced by the same individual are independent of each other.

The ICC of the null model ranged from 6.01% (commute) to 16.57% (skill-use), indicating that a substantial amount of the variation in the likelihood of decreased post-unemployment job quality stems from differences among individuals. It is therefore important to account for unobserved heterogeneity among individuals on a multi-level model.

Table 4

Impact of educational differences on post-unemployment job quality

	Type of work	Income	Promotion	Work load	Commute	Work hour regulations	Benefits	Job security	Skill-use
	Coeff. (s.e.)	Coeff. (s.e.)	Coeff. (s.e.)	Coeff. (s.e.)	Coeff. (s.e.)	Coeff. (s.e.)	Coeff. (s.e.)	Coeff. (s.e.)	Coeff. (s.e.)
Skill-level									
Low	0.02	-0.03	-0.02	-0.02	-0.05*	-0.02	-0.07***	-0.05*	0.04*
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Intermediate	0.02	-0.03	-0.02	-0.03	-0.03*	-0.01	-0.04*	-0.04**	0.06***
	(0.01)	(0.02)	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)
Confounder									
Duration last spell	0.00***	0.00***	0.00***	0.00	-0.00	0.00	0.00**	0.00***	0.00***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Work experience	0.00	0.00	0.00	-0.00	0.00	-0.00	0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Age	0.00	0.00	0.00	-0.00	0.00	-0.00	0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Male	-0.03*	-0.01	-0.02*	-0.01	0.02	-0.01	0.01	-0.01	-0.04**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
East German	0.02	-0.02	0.06***	0.04**	0.01	0.02	-0.01	0.07***	0.04**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Married	0.00	0.01	0.02	0.02	-0.01	0.01	0.00	-0.00	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)
Migration	0.01	-0.02	-0.01	0.00	0.02	-0.01	-0.04**	-0.02	-0.03
	(0.01)	(0.02)	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)
Children	-0.01	-0.01	-0.02	-0.03*	-0.02	-0.04***	0.00	-0.00	-0.02
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Year	-0.00	0.01***	0.00	-0.00	-0.00	0.00	0.00**	0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
N of level 1 units (reemployment occasions)	5,618	5,610	5,512	5,596	5,613	5,595	5,528	5,539	5,889
N of level 2 units (persons)	4,210	4,204	4,145	4,198	4,207	4,198	4,157	4,163	4,372
ICC	7.59	0.00	4.36	6.08	3.50	0.00	4.68	6.00	11.75

* $p < .05$, ** $p < .01$, *** $p < .001$.

Linear probability model. Reference groups are higher education, female, West Germany.

The results of the multi-level logistic regression models appear in Table 4. Immediately apparent is that apart from the last model, all coefficients of skill-level are negative or non-significant, indicating that respondents with low and intermediate skills are less likely than high-skilled respondents of reporting decreased post-unemployment job quality. This finding is surprising given our former expectations. The results indicate that low- and intermediate-skilled respondents have a lower likelihood of reporting decreased job quality with respect to commute, benefits and job security. With regard to skill-use however, highly educated respondents report a lower likelihood of decreased job quality. Higher educated persons seem to take on jobs that give them worse overall working conditions, but a better overall skill-match. Since we already control for length of time spent in unemployment (i.e., time of job search), we can conclude that this finding holds even if we take into account that highly-skilled respondents might search more carefully for their next job, resulting in a better skill-match. Regarding the other covariates, it is particularly interesting that East Germans report a higher likelihood of decreased job quality with regard to promotions, work load, job security, and skill-use. At the same time, male respondents show a lower likelihood of decreased job quality with regard to most categories, leading to the conclusion that women appear to be worse off overall after their entry into the labor market. Respondents with children in the household seem to experience less of a decrease in job quality for work load and work hour regulations, which can potentially be explained by the more careful career planning of those who also have to care for their children, making them incline particularly to jobs with flexible working times.

4. Differences across blue- and white-collar occupations

We wanted to understand whether blue- and white-collar occupations differ crucially regarding the impact of education. Results are found in Tables 5 and 6. Overall, these show that respondents with intermediate education in white-collar occupations report a higher likelihood of a decrease in skill-use, that is, whether they can use their abilities and skills in the new job

(Table 5), while high-skilled respondents in blue-collar occupations report experiencing worse job quality in income, promotion, work hour regulations, benefits, and job security than do lower educated respondents (Table 6). From the results it becomes apparent that since high-skilled persons are commonly subject to over-qualification once they are employed below white-collar occupations (ILO, 2014), high-skilled workers who report decreased job quality are found in post-unemployment jobs for which they are over-qualified. Respondents therefore not only experience downward occupational mobility per se, but are also subject to decreased working conditions. In line with our expectations that the impact of skills is stronger in blue- than in white-collar occupations, we indeed do not find the opposite; there is no significant difference between lower and higher skilled respondents with regard to job quality in white-collar occupations, with the exception of skill-use for intermediate skilled respondents.

Table 5

Impact of skill-level on post-unemployment job quality for white-collar occupations

	Type of work	Income	Promotion	Work load	Commute	Work hour regulations	Benefits	Job security	Skill-use
	Coeff. (s.e.)	Coeff. (s.e.)	Coeff. (s.e.)	Coeff. (s.e.)	Coeff. (s.e.)	Coeff. (s.e.)	Coeff. (s.e.)	Coeff. (s.e.)	Coeff. (s.e.)
Skill-level									
Low	0.01 (0.02)	0.01 (0.03)	0.01 (0.03)	-0.00 (0.03)	-0.01 (0.03)	0.04 (0.03)	-0.01 (0.03)	-0.04 (0.03)	0.05 (0.03)
Intermediate	0.01 (0.01)	-0.01 (0.02)	-0.02 (0.02)	-0.02 (0.02)	-0.04 (0.02)	0.03 (0.02)	0.00 (0.02)	-0.03 (0.02)	0.04* (0.02)
N of level 1 units (reemployment occasions)	2,816	2,813	2,765	2,803	2,816	2,806	2,763	2,767	2,980
N of level 2 units (persons)	2,272	2,269	2,235	2,265	2,272	2,267	2,237	2,237	2,389

* $p < .05$, ** $p < .01$, *** $p < .001$.

Linear probability model. Reference group is higher education. Covariates include duration of last unemployment spell, work experience, age, gender, region, marital status, migration background, children, year.

Table 6

Impact of skill-level on post-unemployment job quality for blue-collar occupations

	Type of work	Income	Promotion	Work load	Commute	Work hour regulations	Benefits	Job security	Skill-use
	Coeff. (s.e.)	Coeff. (s.e.)	Coeff. (s.e.)	Coeff. (s.e.)	Coeff. (s.e.)	Coeff. (s.e.)	Coeff. (s.e.)	Coeff. (s.e.)	Coeff. (s.e.)
Skill-level									
Low	-0.06 (0.04)	-0.07 (0.04)	-0.12** (0.04)	-0.03 (0.04)	-0.04 (0.04)	-0.07* (0.03)	-0.09* (0.04)	-0.10** (0.04)	-0.05 (0.04)
Intermediate	-0.06 (0.03)	-0.08* (0.04)	-0.11** (0.03)	-0.04 (0.03)	0.00 (0.04)	-0.08** (0.03)	-0.05 (0.03)	-0.09** (0.03)	-0.01 (0.03)
N of level 1 units (reemployment occasions)	2,510	2,508	2,474	2,506	2,509	2,503	2,483	2,488	2,609
N of level 2 units (persons)	1,956	1,954	1,929	1,953	1,953	1,950	1,936	1,939	2,020

* $p < .05$, ** $p < .01$, *** $p < .001$.

Linear probability model. Reference group is higher education. Covariates include duration of last unemployment spell, work experience, age, gender, region, marital status, migration background, children, year.

5. Discussion

We analyzed a large sample of German respondents, asking whether their post-unemployment job quality was influenced by their skill-level. Drawing on sociological and economic theories,

we expected unemployed people with low skill levels to have a higher likelihood of finding decreasing post-unemployment job quality owing to the decreasing demand in low-skilled labor, the stigma attached to their level of education, and limited employment opportunities, as highly-skilled people were displacing low-skilled workers. We further expected that the effect of skills would be smaller in white-collar occupations, which were found to provide better job quality in general.

Examining our results, we draw the conclusion that high-skilled unemployed people who re-enter the labor market have a higher likelihood of finding jobs of lower job quality than low-skilled unemployed who find reemployment. Our results are particularly driven by high-skilled respondents who experience downward mobility, that is, do not find reemployment that matches their own educational level. Interestingly, the opposite appears not to be the case: there is no significant difference among diversely skilled respondents in white-collar occupations. We find an exception with regard to skill-use, namely high skilled respondents appear to have a higher likelihood of finding post-unemployment jobs in which they can utilize their abilities. We conclude that the high-skilled incline to decreased working conditions post-unemployment, but are still more likely to find jobs with good skill-matches. But given the overall results, we argue that there might be a floor-effect: low-skilled unemployed are already subject to low pre-unemployment job quality and there simply is no 'way down' for them in terms of job quality. At the same time, for the high-skilled, who are commonly found in jobs of higher quality, unemployment is a major disruptive event which leaves them with a higher likelihood of downward mobility.

We do not find any impact of differences in skill-level on job quality regarding type of work and work load, in neither the main analysis nor the subgroup analyses. We argue that type of work is a difficult category, as it remains unclear what exactly is meant by a difference in 'type

of work' between pre- and post-unemployment jobs. We are, however, puzzled by the finding regarding work load, and leave it to future research to look closer into this surprising result.

Regarding our initial question, whether unemployment fosters the skill divide in job quality, our results lead to the conclusion that it indeed does not. Although it would be preferable to find jobs with equal or improved quality after unemployment for all respondents, in particular given its importance for employment stability and health, unemployment appears to be most disruptive for those who are on the up-side of job quality. This is especially the case if the unemployed person accepts a job for which he or she is overqualified. However, since we only examine reemployed respondents, we are aware that our interpretation regarding the 'equalizing effect' only applies to those who were unemployed. In other words, it does not apply to the entire distribution of job quality in the labor market, which includes those in constant employment or those who transitioned from one job to another without leaving the labor market.

Because our analyses are only of respondents who successfully re-enter the labor market, we must address a potential selection bias. We attempted to reduce this potential bias in our regression models by controlling for remaining differences in observable characteristics and prior work history. Similarly, we cannot rule out the possibility that our results are confounded by endogeneity, as unobserved factors might be correlated with both our covariates and our dependent variable. For example, individuals from advantaged backgrounds with well connected social networks might enjoy better employment opportunities as well as acquire more schooling. Further, we are aware that education is only a proxy for skills, and that a better measurement of skills would also take account of additional education and on-the-job training throughout the occupational trajectory. While we tried to take further vocational training into account, our analyses were subject to strong decreases in sample size, therefore of too limited power to draw any conclusions. We encourage future research to re-examine the impact of skills on post-unemployment job quality, taking a more fine-grained approach in measuring skills,

but also to look closer into why low-skilled people are less prone to decreasing job quality and ask whether this effect is indeed due to a floor-effect or whether other mechanisms are needed to explain our findings.

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Conclusion

What can the state and what can the individual do to overcome or at least mitigate the consequences of unemployment? In light of the ongoing process of technological change and the trend toward labor market flexibilization, unemployment does and will most likely be increasingly taking a prominent role in the individual life course. I examine three pathways to overcome the consequences of unemployment that have been given little attention up to date but are valuable and important contributions to the current scholarly and public debate. The first analysis focused on the impact of governmental interventions in the form of ALMP schemes on the life satisfaction of the unemployed. The second analysis examined whether the level of life satisfaction of the unemployed can predict their reemployment chances. The third study focused on the questions whether the highly educated are more likely to find better quality jobs post-unemployment. Examining three desirable outcomes – increased well-being, finding reemployment and good post-unemployment job quality - and covering the timespan from being unemployed to returning to the labor market, my dissertation contributes to a comprehensive understanding of ways to overcome the consequences of unemployment phases. In summary, yes, both the state as well as the individual can alleviate the consequences of unemployment and contribute to well-being and labor market success. These aspects relate to both the use of government interventions as well life satisfaction, yet less so for education. To give a more detailed response to the question stated in the beginning of this section, the following chapter will shortly summarize the results of this dissertation. Following that, chapter 2 will provide an overview over the most important limitations of this research and chapter 3 will cover important suggestions for future research.

1. Results

What are the main results of the three analyses in this dissertation? The main finding of part 1 is that the participation in ALMP schemes successfully raises the life satisfaction of the unemployed, in particular in the case of wage and start-up subsidies. While these programs certainly do not imply a full return to the labor market, they imply a daily routine of work as well as to a certain degree a pay check. What remains particularly interesting in this study is furthermore that educational programs, both long- and short-term training, show little impact on the life satisfaction of the unemployed. This is surprising, because education is considered as one of the most important ways to overcome unemployment in the long run and certainly an important part of the current debate about the skill-demand and the future of work.

That life satisfaction indeed matters can be seen in the second part; unemployed who are moderately satisfied with their life show the highest probability of finding reemployment. This suggests first, that the saying 'the more, the better' is not the case for finding reemployment with regard to life satisfaction and challenging a vast amount of literature according to which more life satisfaction can only produce a better life with regard to just about every aspect.

Lastly, taking the focus toward those who are successfully getting back into the labor market, study 3 zooms in on the quality of life aspect that has been central to the first two studies and focus on quality of employment. The third analysis shows that, again, education is not the means-to-an-end as we often perceive it to be. Instead, those of higher education have a higher likelihood of reporting worsened job conditions in comparison to their pre-unemployment job, e. g. with regard to job security and additional financial benefits. It remains possible that there is a 'floor-effect' in which those of lower education already find themselves in lower quality employment and remain in jobs of lower quality post-unemployment, which would explain why we do not see any further impact of unemployment on their job quality. This seems to be

confirmed by the finding that the higher educated reporting decreased working conditions are also those who find reemployment in blue-collar occupations, i.e. those who experience downward-mobility.

All three studies taken together, I come to the conclusion that those who proactively shape the time of unemployment, their environment and their psychological constituency, experience labor market success and well-being, despite unemployment. Individual resources, on the other hand, such as human capital, are of importance, but are not the 'panacea' to combat unemployment. Further, the state can support the unemployed through government schemes, which create a daily routine and a work environment for the unemployed, ultimately leading to beneficial consequences in their outlook on life.

2. Limitations

I am aware of the limitations of my research. First, the dissertation builds on the main assumption that unemployment is a detrimental experience to the unemployed. While a vast amount of research points toward the negative impact of unemployment on the life, psyche and future of the individual, it is certainly possible to think of cases in which the loss of work is seen as a positive and beneficial experience, at least in the short run. For example, in cases where the former job had a negative impact on the life of the individual and the time of unemployment is seen as a relief. Indeed, for those who become voluntarily unemployed and already have the next job in line, life satisfaction very slightly increases during the time of unemployment (Hajek, 2013). Also, unemployment does not show the same impact on everyone. For example, living in a region with stronger collectivist rather than individualistic norms and experiencing the time without employment as purposeful, alleviate the negative impact of unemployment on well-being (Martella & Maass, 2000). Further, unemployment can function as a time to rethink past and future occupational choices and step onto a new career

path, holding the potential to increase post-unemployment life and job satisfaction and even job quality. Therefore, despite the immense amount of research highlighting the negative consequences of unemployment, individuals are different to each other and I cannot rule out that for some individuals unemployment was and is a neutral or even positive experience.

The second limitation relates to the exclusive use of survey data in all three studies, namely the IZA Evaluation data set and the GSOEP. Survey research is a "type of field study that involves the collection of data from a sample of elements (e.g., adult women) drawn from a well-defined population (e.g., all adult women living in the United States) through the use of a questionnaire" (Visser, Krosnick, & Lavrakas, 2000). More specifically, panel surveys are used, i.e. the data is collected from the same individuals on at least two time points. Surveys are particularly useful because they enable me to examine a large and representative sample of individuals, in order to draw inferences about the population as a whole. Furthermore, using panel surveys, I have the possibility to observe change over time (Andreß, Golsch, & Schmidt, 2013), such as the transition from unemployment to reemployment or the change in life satisfaction over time.

However, there are many drawbacks to using survey data instead of e.g. a field experiment or narrative interviews. The narrow interpretation frames used in survey questionnaires, i.e. the interviewee answering specific questions without any possibility to add comments or give his own perspective, is such a main drawback. The variability in the interviewees understanding of the interview question can be substantially high, even with ordinary question (Belson, 1981). One of the main concepts and consequently also main issues of concern with the use of survey data in this doctoral thesis is the labor force status of the respondents, particular whether they are in employment or unemployment. Employment and unemployment spells are reported retrospectively by the respondent in both surveys used. I.e. the interviewee is remembering during his interview the exact times of employment, (registered) unemployment, etc. Many studies (cf. Jürges, 2007; Mathiowetz & Ouncan, 1988) have repeatedly shown this way of

reporting to be prone to measurement errors as interviewees falsely recall information, especially in areas where complex background mechanisms such social desirability bias are at play. Pyy-Martikainen and Rendtel (2009) have shown that low desirable events, as is often the case in unemployment, leads to under-reporting while socially desirable events tend to be over-reported. Further, it is found that those with a lower level of labor force participation for which work has a lower saliency, tend to show a higher likelihood of measurement error, in particular women (Paull, 2002) and teenagers (Bound, Brown, & Mathiowetz, 2001). With respect to the aspect of social desirability, Mathiowetz and Ouncan (1988) further show that in particular the long-term unemployed tend to feel attached with a stronger social stigma than those who are unemployed for a short period and are therefore more likely to generate such type of measurement errors, especially in face-to-face interviews.

3. Recommendations for future research

In general, a lot more research needs to be put into the intertwinement of labor market success and well-being of the unemployed. There is still limited overlap between the fields of labor economics and labor market sociology and both fields can largely contribute to a holistic picture of how unemployment shapes the individual but even more so how the unemployed can overcome its consequences. More specifically, I suggest future research to take a closer look at the following open questions that remain from my studies. First, what impact has ALMP scheme participation on the life satisfaction of the unemployed in the long-run? This question remains particularly interesting with regard to the impact of educational programs such as retraining and short-term courses. Second, I would like to point toward the mechanism between well-being of the unemployed and reemployment that is overall captured by study 1 and 2. It would be particularly interesting to see whether research could establish in how far the link between unemployment and reemployment is mediated by life satisfaction. Third, I encourage future research to examine the impact of education on post-unemployment job quality by taking

the base-level of each respondent into account, i.e. taking the type of occupation and level of job quality of the former job into account. This enables to understand the fuller picture on how job quality changes in the transition from employment to unemployment and ultimately to reemployment.

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